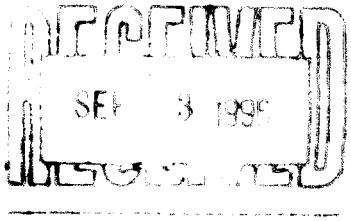
TOSHIBA

FILE NO. 120-9601

SERVICE MANUAL



VIDEO CASSETTE RECORDER

M-672, M-672C
M-65, M-65C
M-662, M-662C
M-472, M-45
M-462

PRINTED IN KOREA, MAY, 1996

2. DISASSEMBLY & REASSEMBLY

2-1. INSTRUMENT DISASSEMBLY

2-l-l. Bottom Cover Removal

1. Remove two (2) screws holding the bottom cover.
2. Release two (2) tabs from the bottom cover.

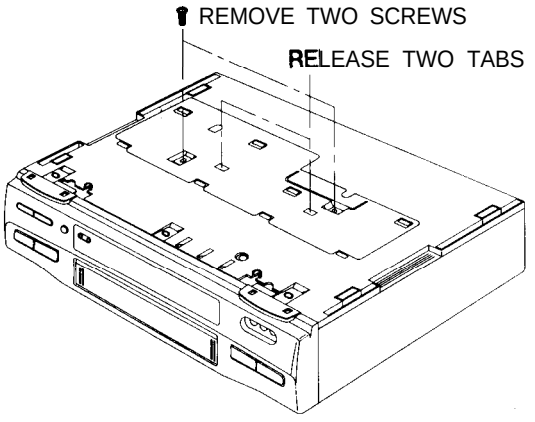


Fig. 1 Bottom Cover Removal

2-l-2.Top Cabinet Removal

1. Remove three(3)screws located at the rear of the top cabinet.
2. Carefully lift the back of the top cabinet and slide it to the rear to remove.

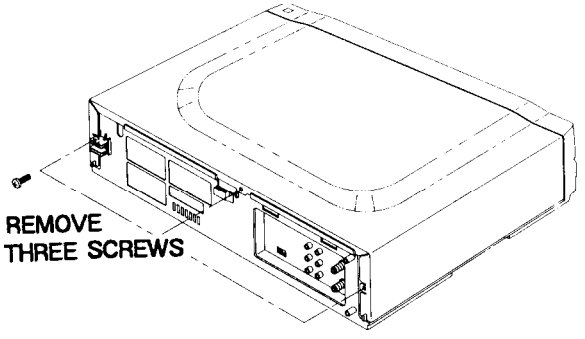


Fig. 2 Top Cover Removal

2-l-3. Front Panel Removal

1. Remove bottom cover and top cabinet (See Fig. 1 to **2).**
2. Release three (3) tabs from the bottom of the front panel.
3. Release four (4) tabs from the top of the front panel.
4. Tilt the front panel forward to remove.

NOTE : First, release three (3) tabs from the bottom completely and then release four (4) tabs from the top of the front panel.

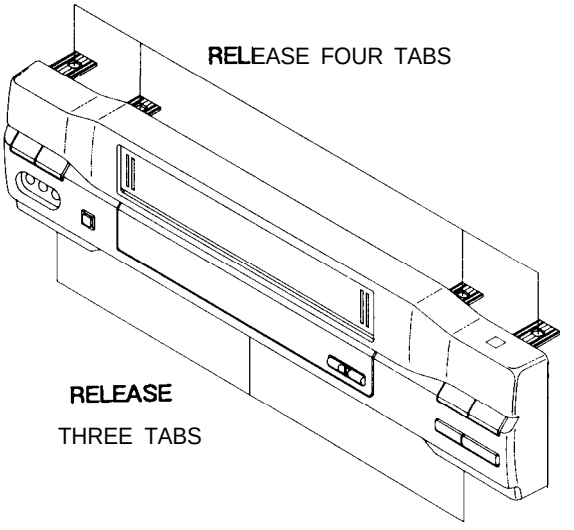


Fig. 3 Front Panel Removal

2-2. CIRCUIT BOARD DISASSEMBLY

2-2-l. Function PCB Removal

1. Follow the procedures for removing the bottom cover, the top cabinet and the panel front. (See Fig.1 to 3)
2. Release five (5) tabs on the function board.
3. Release connector(CN701) gently with using the Driver as shown Fig. 4

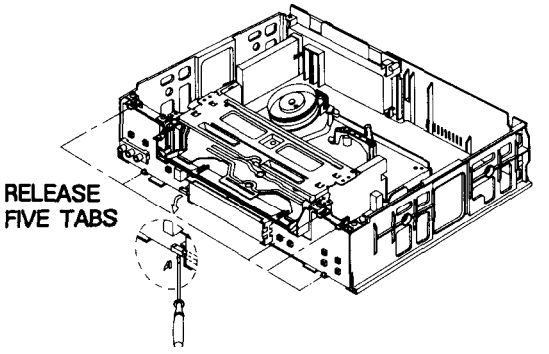


Fig. 4 Function PCB Removal

2-2-2. Deck Ass'y Removal

1. Follow the procedures for removing the bottom cover, top cabinet and the front panel ass'y (See Fig.1 to 3)
2. Remove four (4) screws from the bottom and top of the deck ass'y.
3. Remove two (2) screws from the bottom of the frame.
4. Lift the deck ass'y upward to remove.

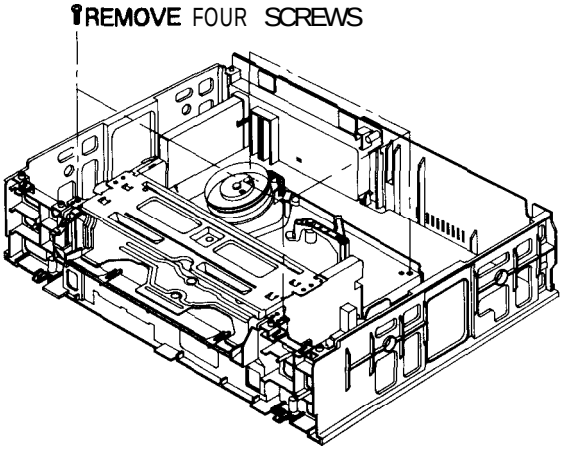


Fig. 5 Deck ass'y Removal

2-2-3. Main circuit board Removal

1 .Follow the procedures for removing Fig. 1 to 6
2.Release three (3) tabs from the frame.
3.Pull out the main circuit board in the direction of the arrow.

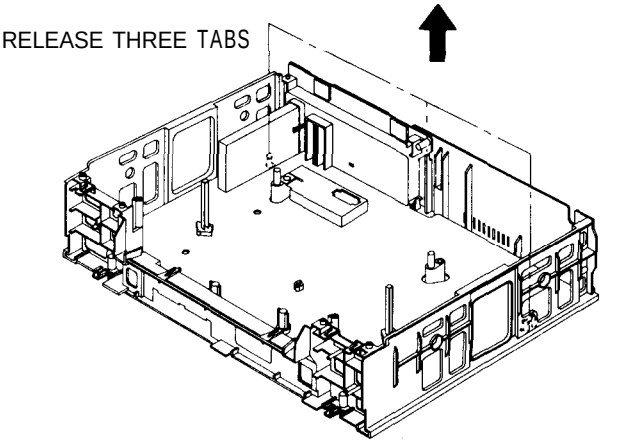


Fig. 6 Main Circuit Board Removal

2-3. INSTRUMENT ASSEMBLY REMOVAL

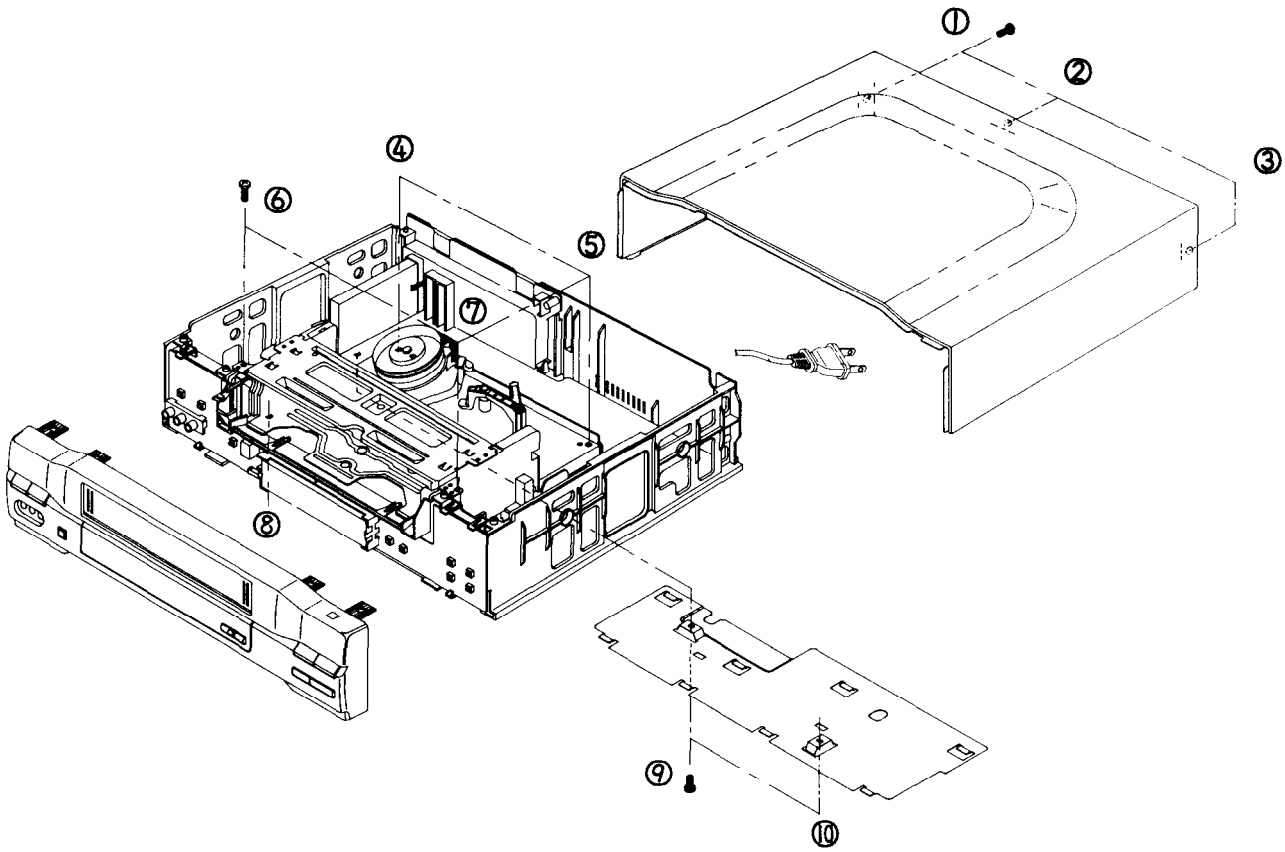


Fig. 7 Instrument Assembly Removal

1. Remove screws (⑨, ⑩) and release the bottom cover.
2. Remove screws (①, ②, ③) and release the top cover.
3. Release the front panel as shown in Fig. 3
4. Release connector (CN701) gently with using the Driver as shown Fig. 4
5. Remove screws (④, ⑤, ⑥, ⑦, ⑧) holding the deck and follow the procedures on next page.

2-4. TROUBLESHOOTING POSTURE

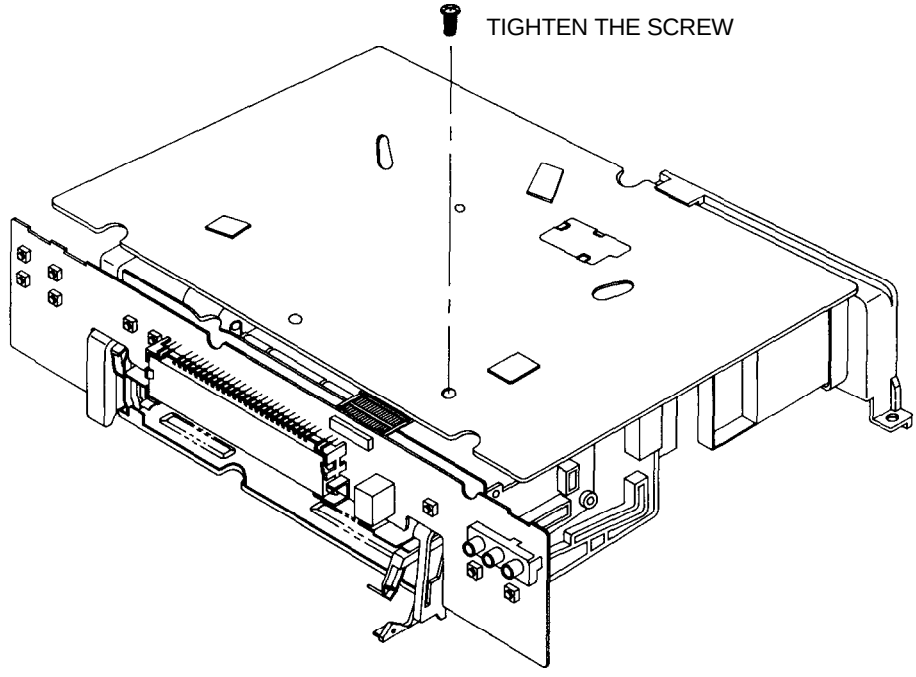


Fig. 8 Trouble Shooting Posture

1. Set the main PCB & DECK ass'y as shown in Fig. 8.
2. Tighten the screw.
3. Install the Function PCB to Main PCB

NOTE : After tightening the screw, be sure to make troubleshooting.

2-5. TAPE TRANSPORT MECHANISM IDENTIFICATION

2-5-l. Deck (lop View)

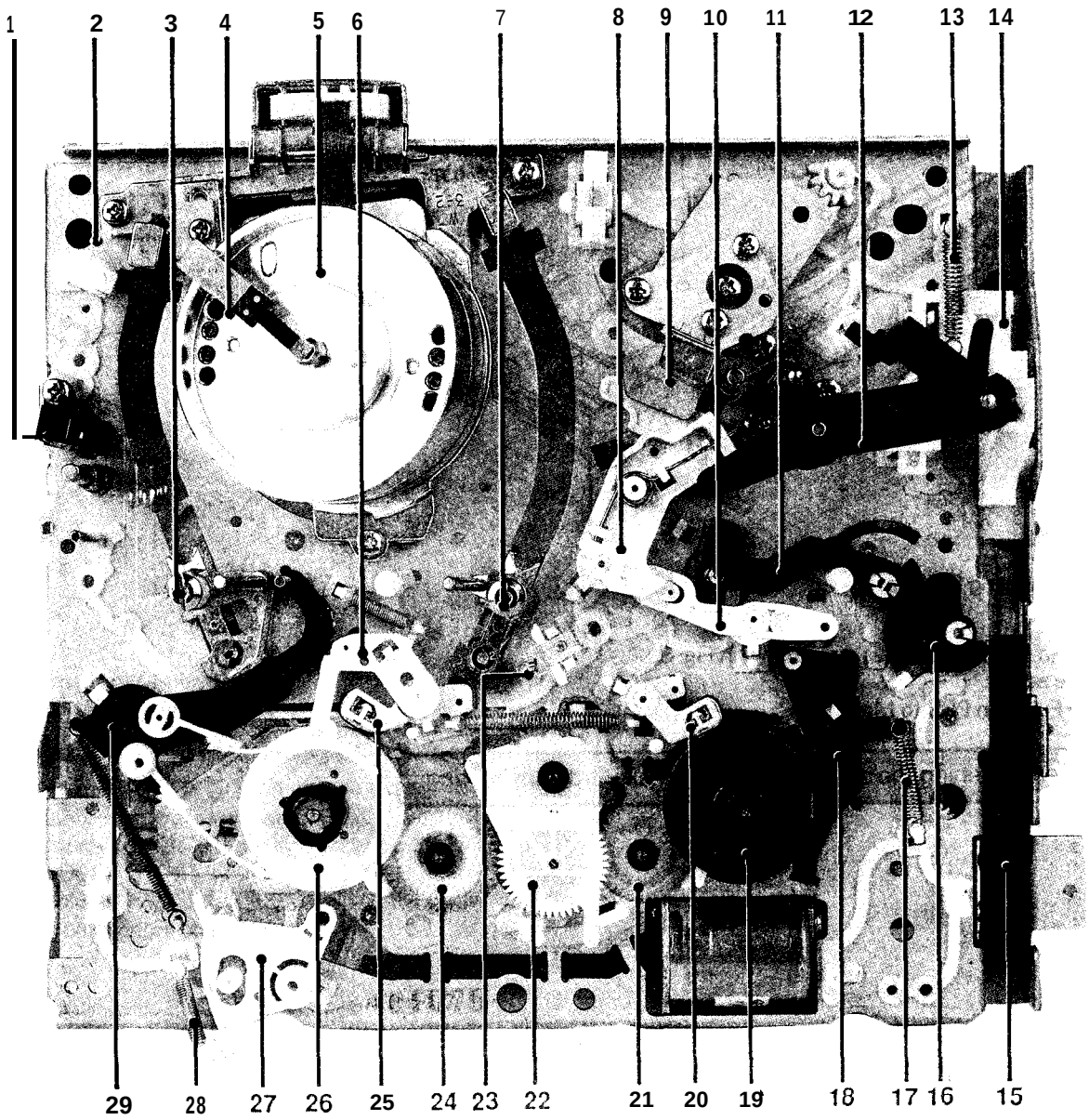


Fig.9 Deck Parts Locations (Top View)

1. FULL ERASE HEAD
2. STOPPER TAPE
3. SLIDE GEAR LOADING ASS'Y "T"
4. HEAD BRUSH ASS'Y
5. CYLINDER ASS'Y
6. BRAKE SUB "L"
7. SLIDE GEAR LOADING ASS'Y "S"
8. LEVER PINCH COMP
9. FULL ACE HEAD ASS'Y
10. LEVER PINCH CAM
11. ARM REVIEW ASS'Y
12. UNIT PINCH ROLLER ASS'Y
13. SPRING SLIDE PUSH
14. SLIDE PINCH
15. SLIDE RACK HOUSING
16. LEVER REVIEW
17. SPRING BRAKE SUB "R"
18. BRAKE SUB "R" ASS'Y
19. REEL DISK "R" ASS'Y
20. BRAKE MAIN "R" ASS'Y
21. GEAR RELAY "T" ASS'Y
22. IDLER ASS'Y
23. PRISM LED
24. GEAR RELAY "S" ASS'Y
25. BRAKE MAIN "L" ASSY
26. REEL DISK "L" ASS'Y
27. LEVER REC SWITCH
28. SPRING REC SWITCH
29. ARM TENSION FULL ASSY

2-5-2. Deck (Bottom View)

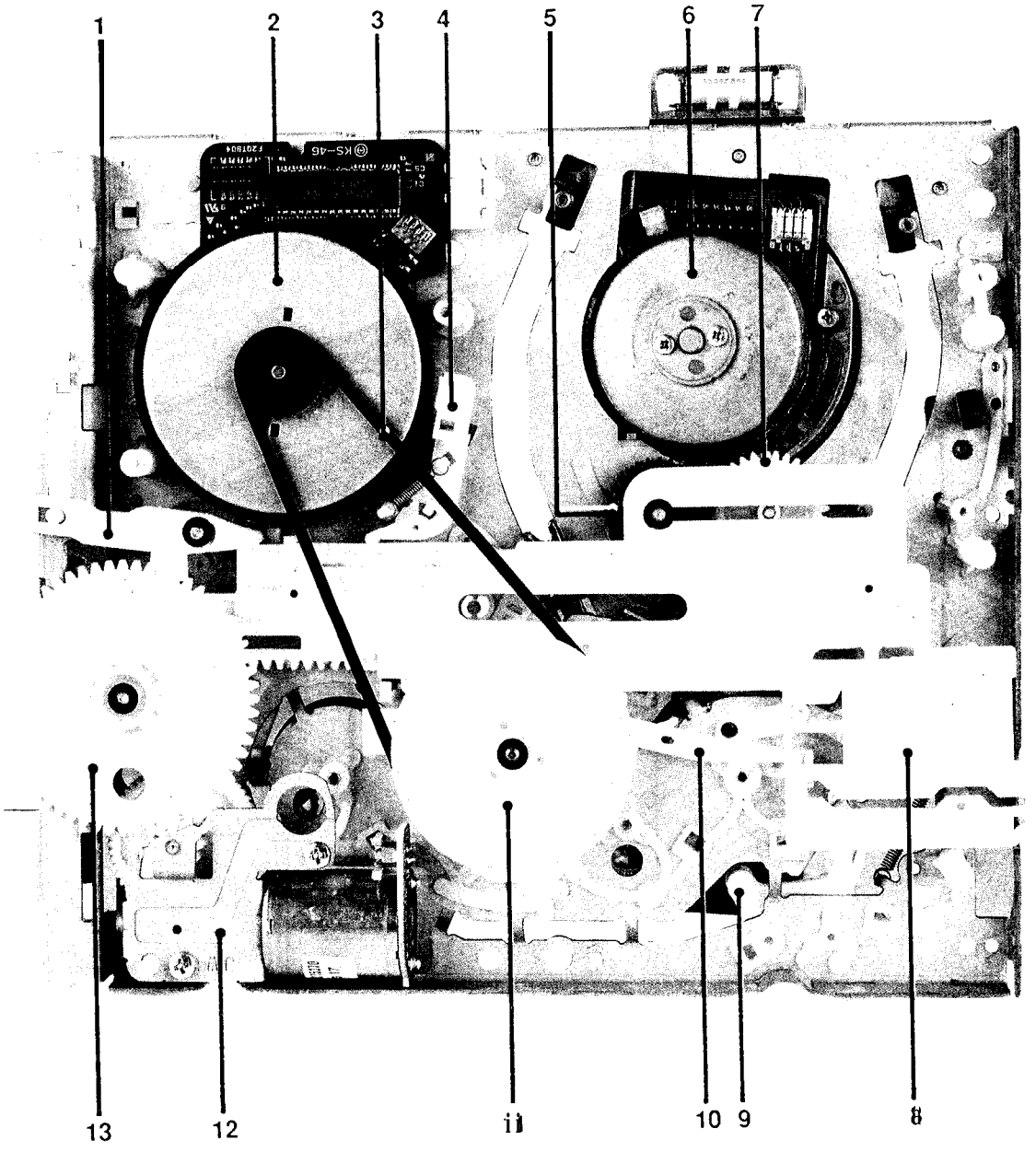


Fig. 10 Deck Parts Locations (Bottom View)

1. LEVER SLIDE PINCH
2. MOTOR D.D CAPSTAN
3. BELT CAPSTAN
4. BRAKE CAPSTAN ASS'Y
5. GEAR LOADING "R" ASS'Y
6. MOTOR CYLINDER
7. GEAR LOADING "L" ASS'Y
8. SLIDE MAIN
9. LEVER REC SWITCH
10. LEVER IDLER CHANGE
11. CLUTCH ASS'Y
12. UNIT LOADING
13. GEAR MASTER

2-6. Housing Assembly

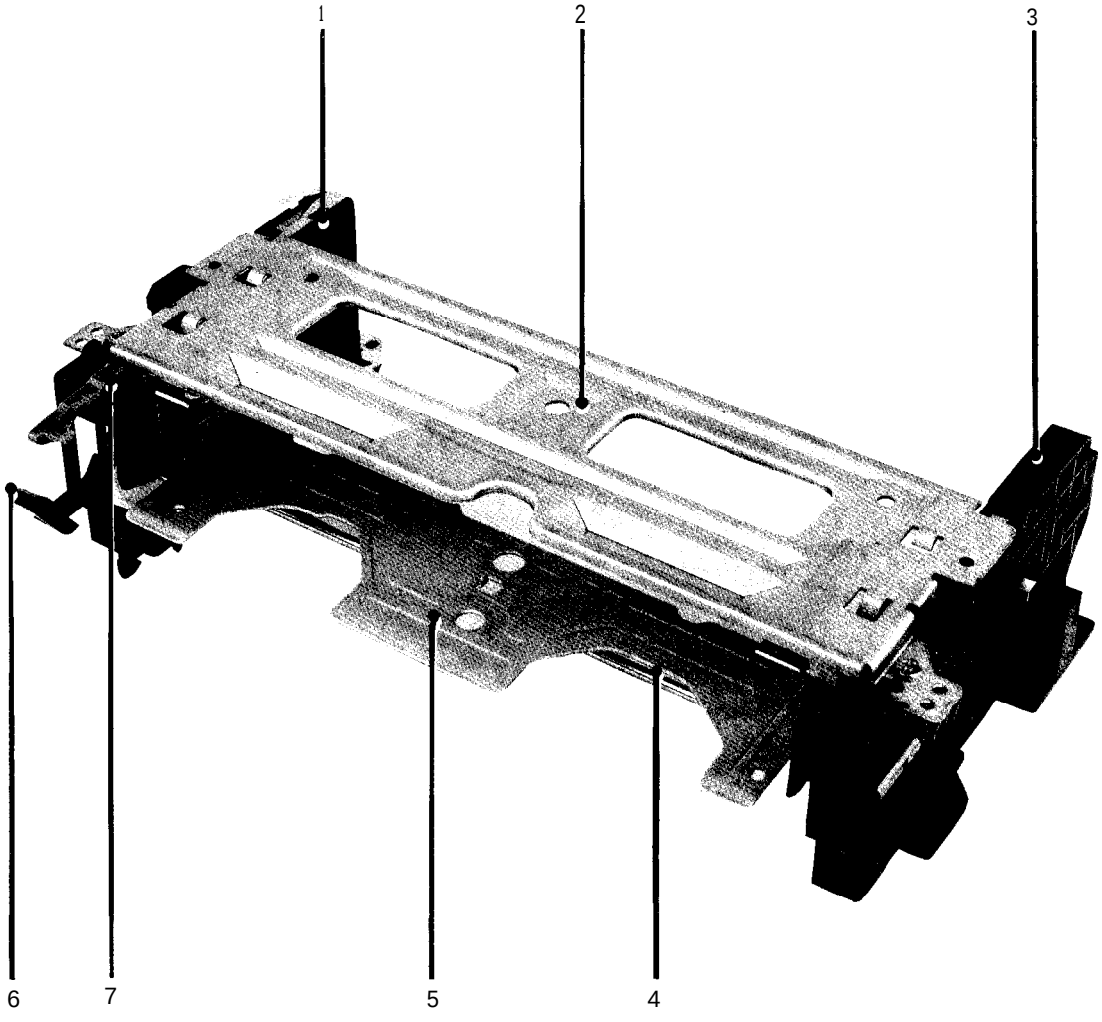


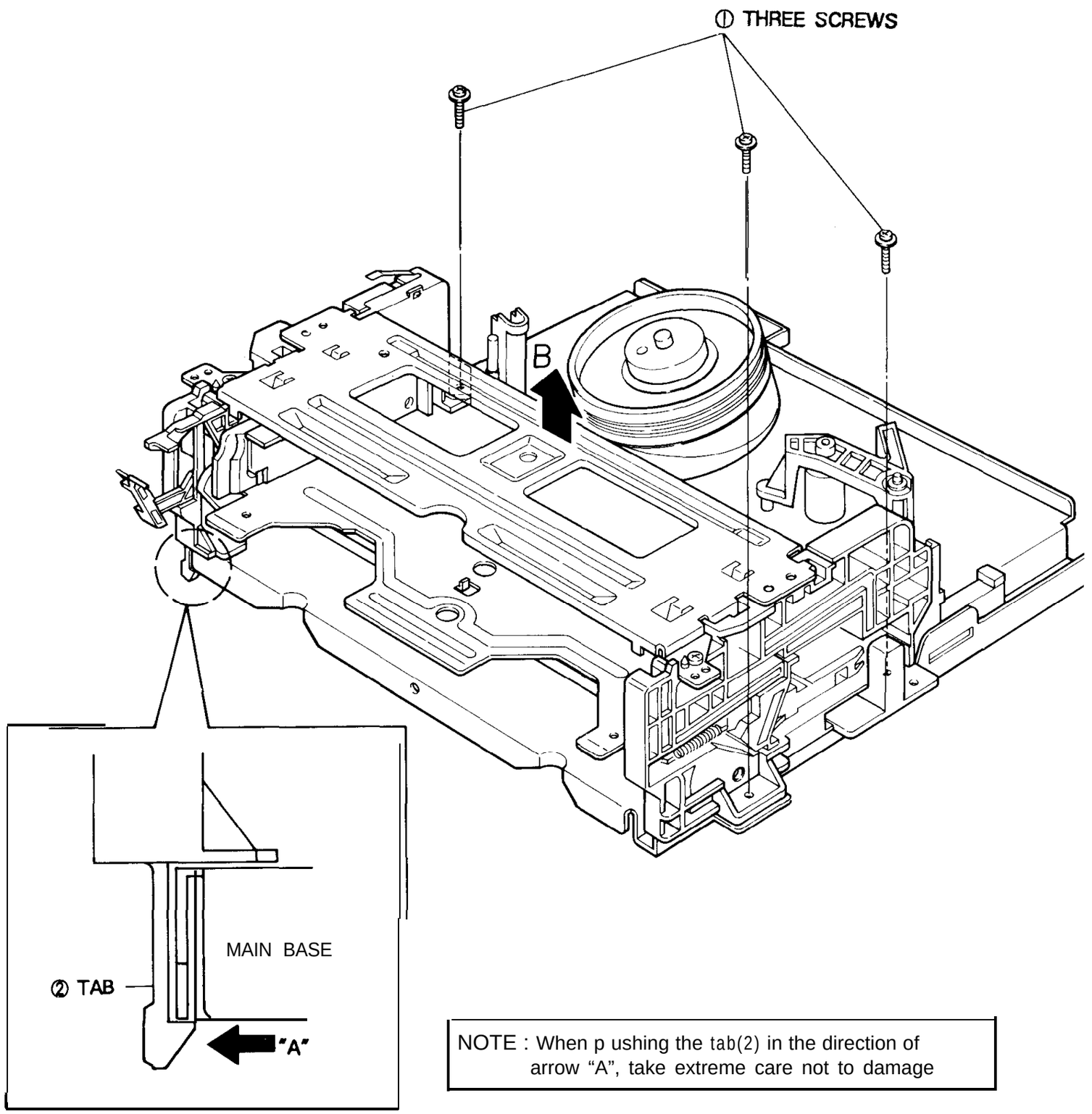
Fig. 11 Housing Parts Locations

1. CHASSIS SIDE "L" ASS'Y
2. UPPER CHASSIS
3. CHASSIS SIDE "R" ASS'Y
4. SHAFT ARM ASS'Y
5. HOLDER CASSETTE ASS'Y
6. LEVER DOOR ASS'Y
7. DOOR LOCK

2-6-I. Removal from Main Base

1) Remove three(3) screws ①.

2) Lift the housing ass'y in the direction of arrow 'B' while pushing the tab ② in the direction of arrow 'A'.
(Refer to detail drawing)



NOTE : When p ushing the tab(2) in the direction of arrow "A", take extreme care not to damage

<DETAIL>

Fig. 12 Housing Ass'y Removal from Main Base

2-6-2. Disassembly

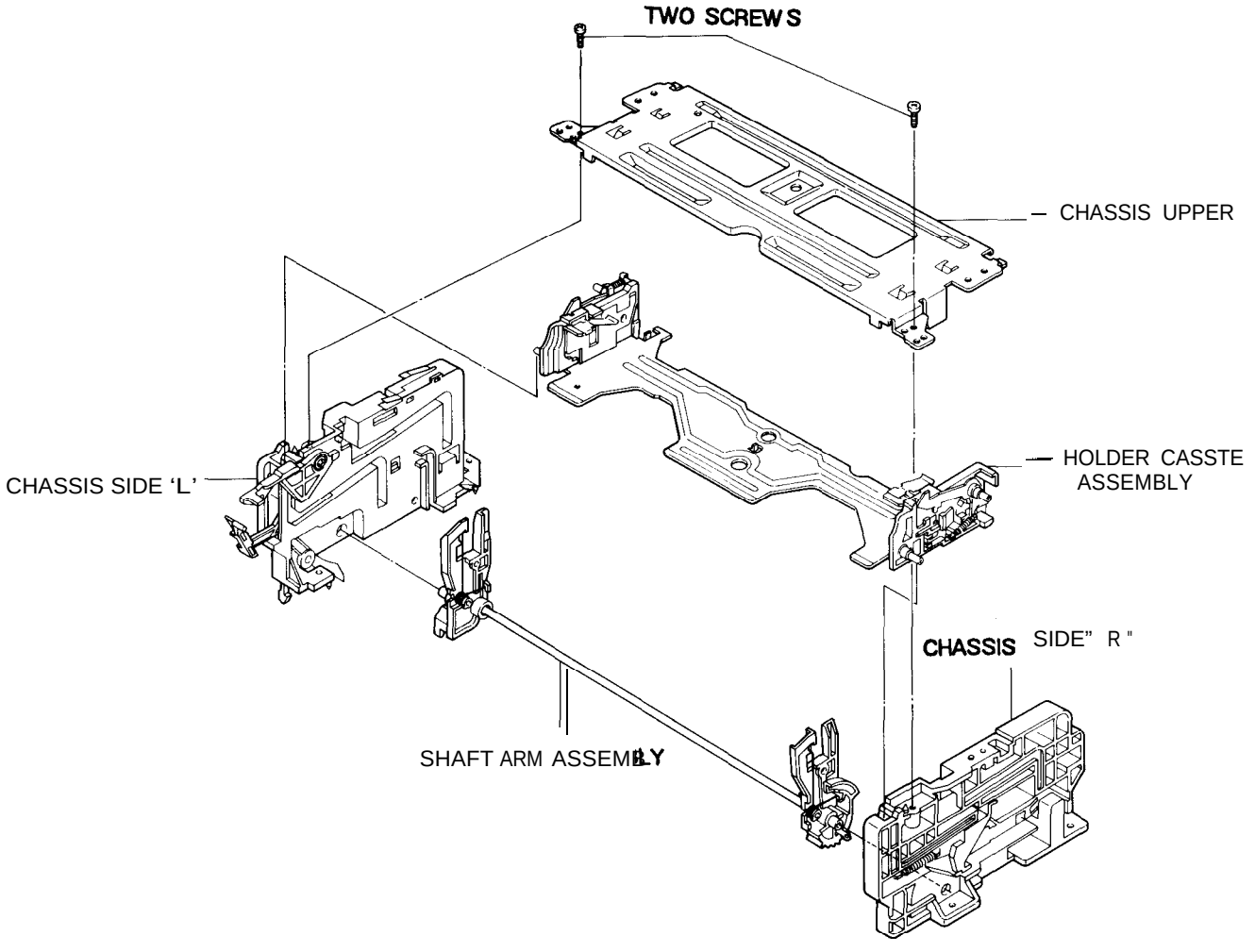


Fig. 13 Housing Ass'y Removal

2-6-3. Upper Chassis Removal

1) Remove two(2) screws ①.

21 Lift the upper chassis ② in the direction of arrow ‘A’

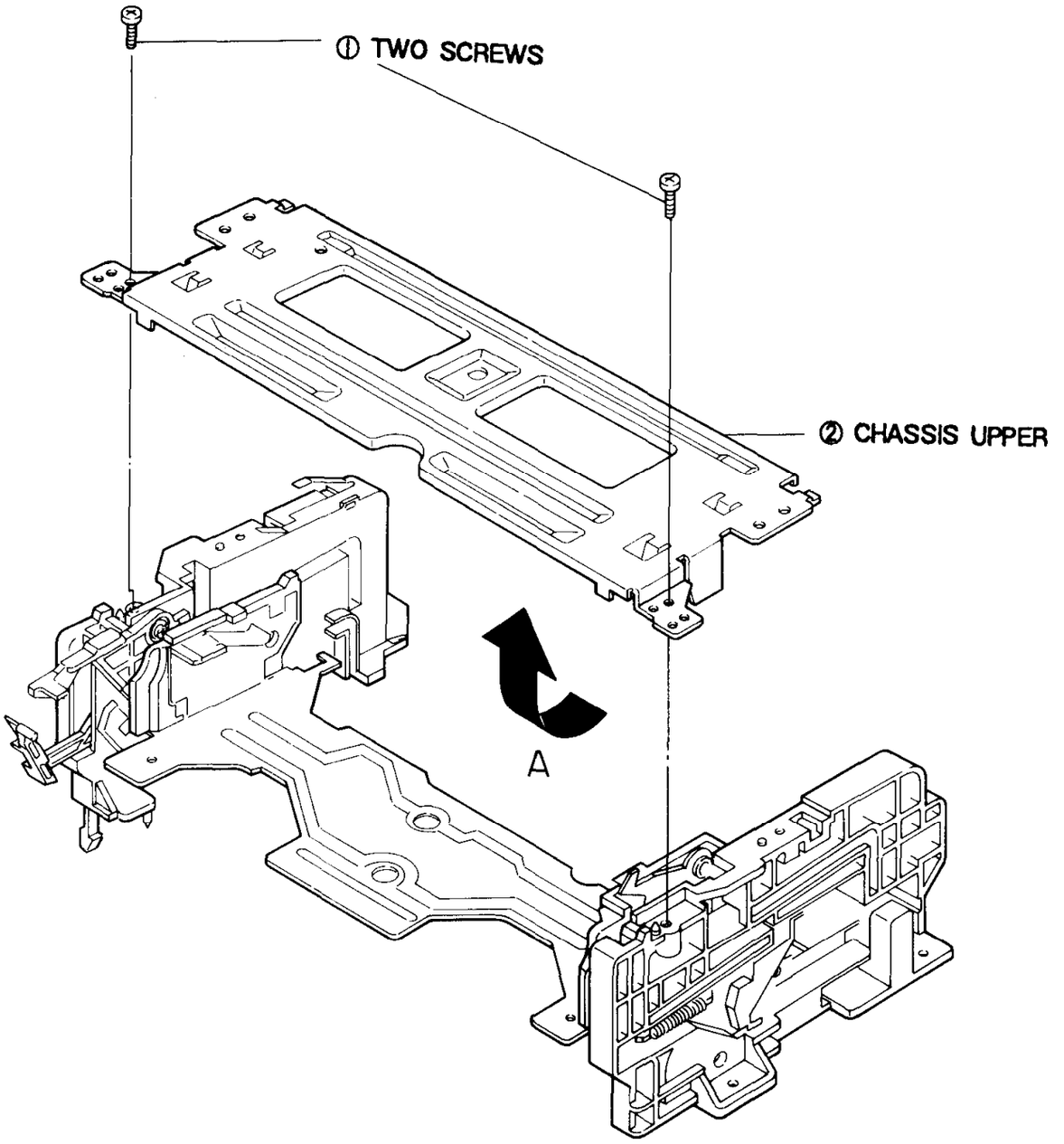


Fig. 14 Upper Chassis Removal

2-6-4. Holder Cassette Ass'y & Chassis Side L/R Removal

1) Lift the holder cassette (D in the direction of arrow 'A' (Refer to Fig. A).

2) Remove the chassis side "L" ② & 'R' ③ from shaft arm ass'y ④ in the direction of arrows 'B', 'C' (Refer to Fig. B).

NOTE : If you operate the deck when the holder cassette ass'y is removed, the shaft arm "R' and the slide damper are not returned to their original position. If this happens by accident, push the slide damper of chassis side 'R' in the direction of arrow "D", and return the slide damper in the reverse direction of arrow "D' when the shaft arm ass'y is in eject mode.

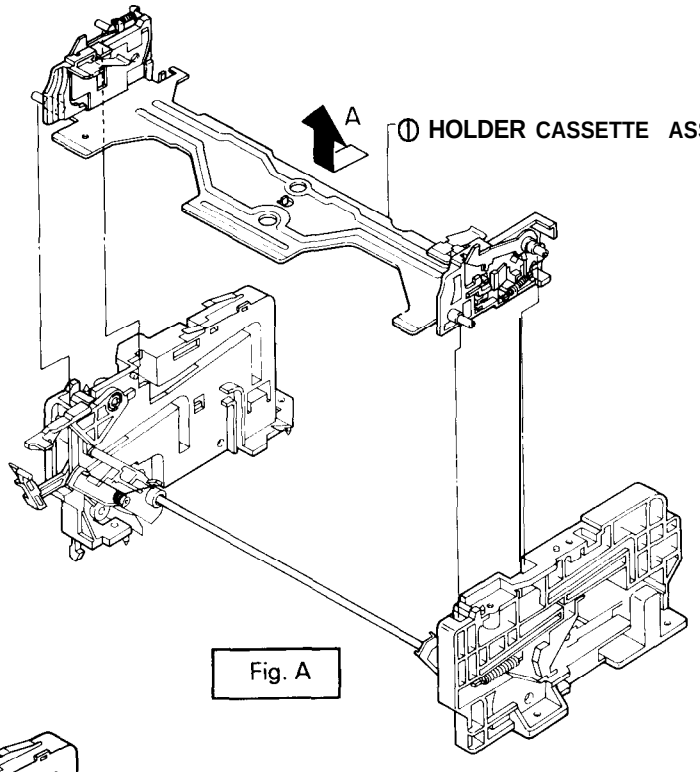


Fig. A

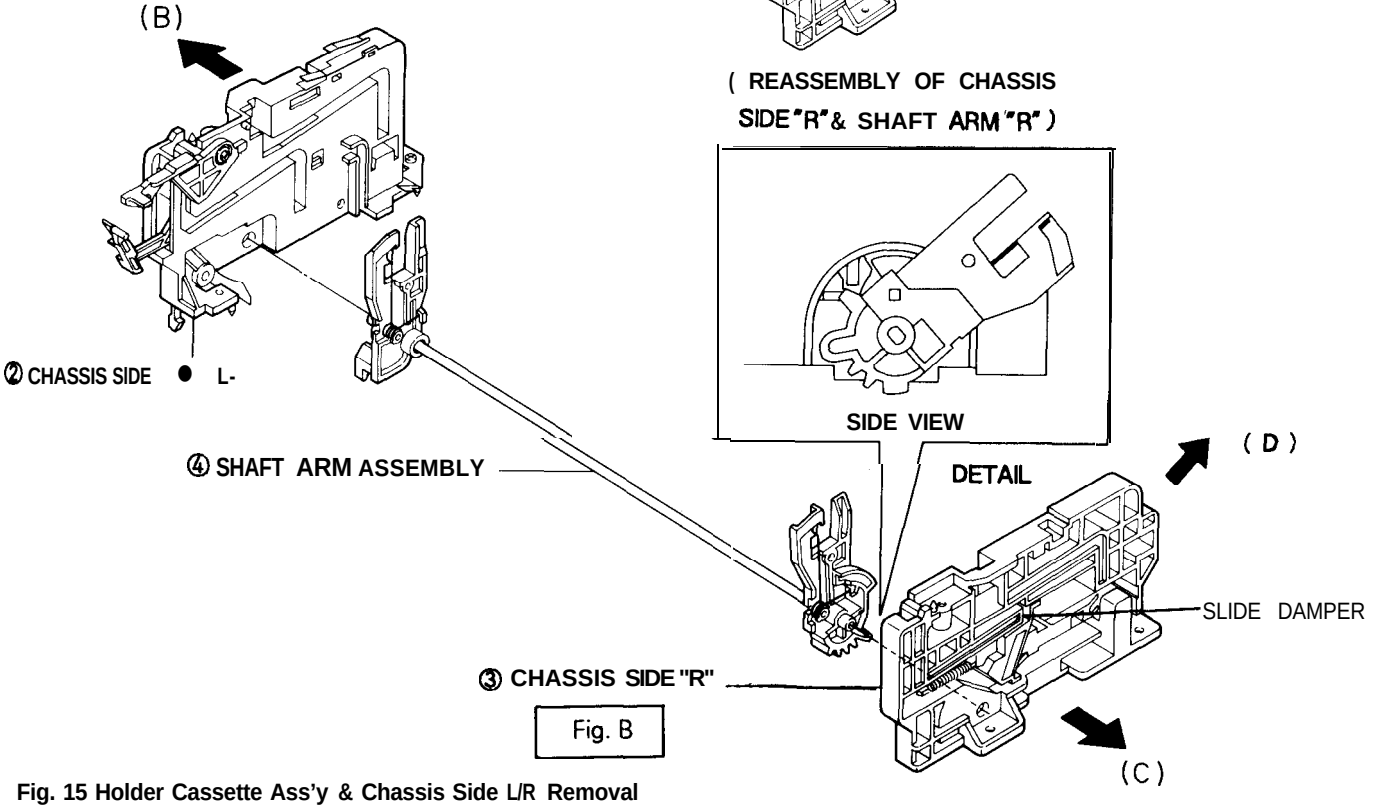


Fig. B

Fig. 15 Holder Cassette Ass'y & Chassis Side L/R Removal

2-6-5. Chassis Side "R" Parts Locations

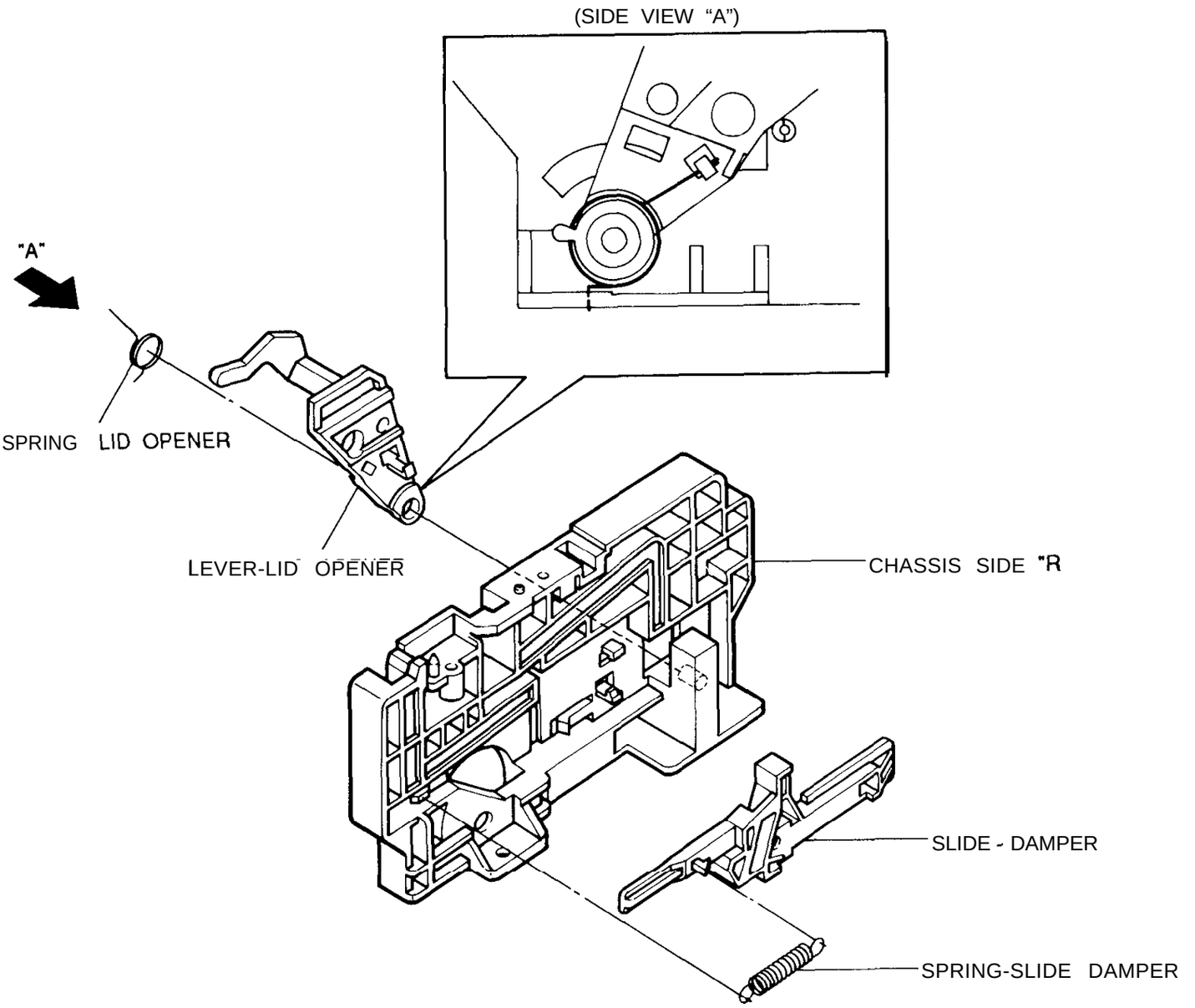


Fig. 16 Chassis Side "R" Parts Locations

2-6-6. Slide Damper Removal

1) Remove the spring slide damper ①.
2) Push the stopper ③ of the chassis side "R" ④. Move the slide damper ② in the direction of arrow.
3) Align the slide damper ② with the chassis side tab (as shown detail drawing).
4) Lift the slide damper ② to remove.

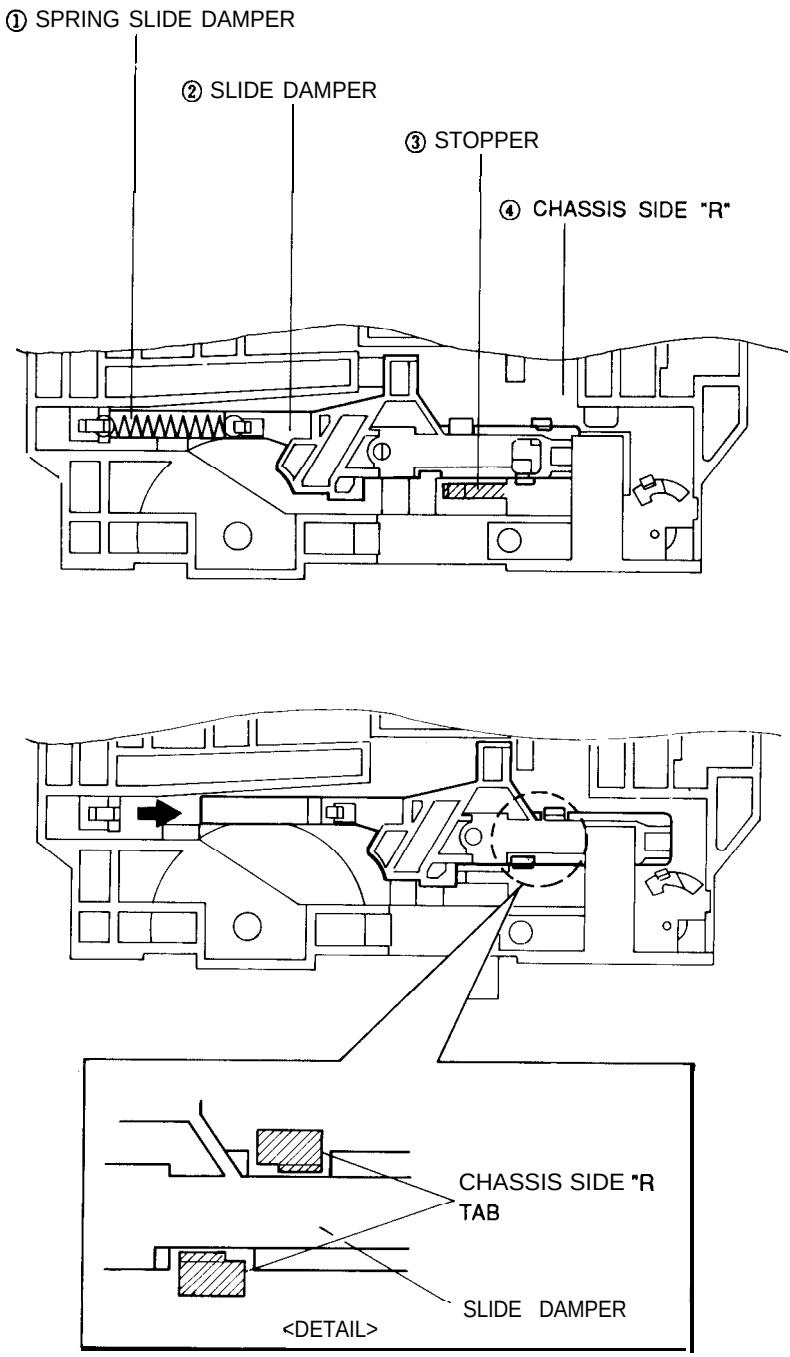


Fig. 17 Slide Damper Removal

2-7. Cylinder Ass'y

2-7-I. Exploded View of Cylinder Ass'y

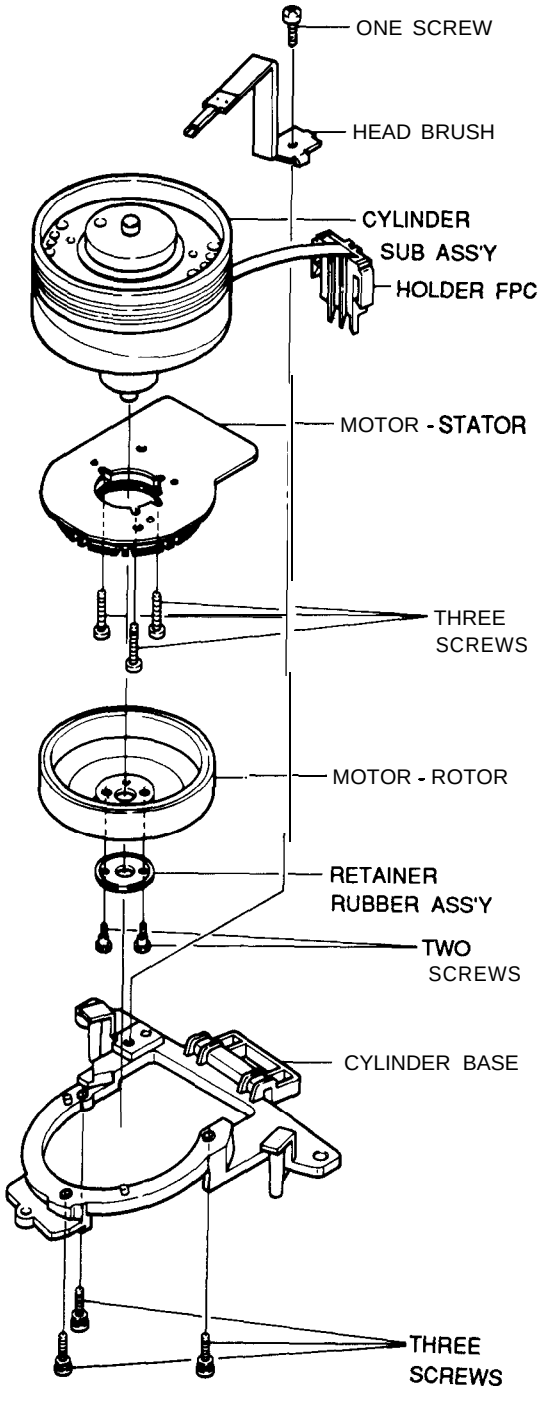


Fig. 18 Exploded View of Cylinder Ass'y

2-7-2. Stopper Tape

【1】 Stopper Tape Removal
(Only for deck : DX5-R, Refer to Fig. A)

1) Release one(1) tab ① in the direction of arrow 'A'.
(Refer to detail drawing)
2) Lift the stopper tape ② in the direction of arrow 'B'.

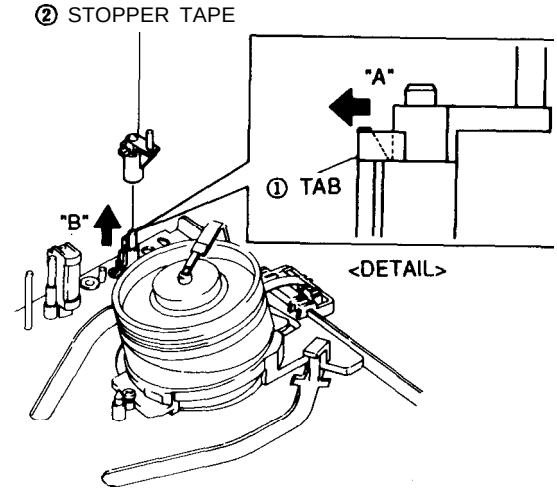


Fig. A

Fig. 19 Stopper Tape Removal

2-7-3. Cylinder Ass'y Removal from Main Base

1) Remove three(3) screws ① holding the main base and the cylinder ass'y.
2) Lift the cylinder ass'y ② in the direction of arrow.

NOTE : Do not touch the video heads during removal or. installation.

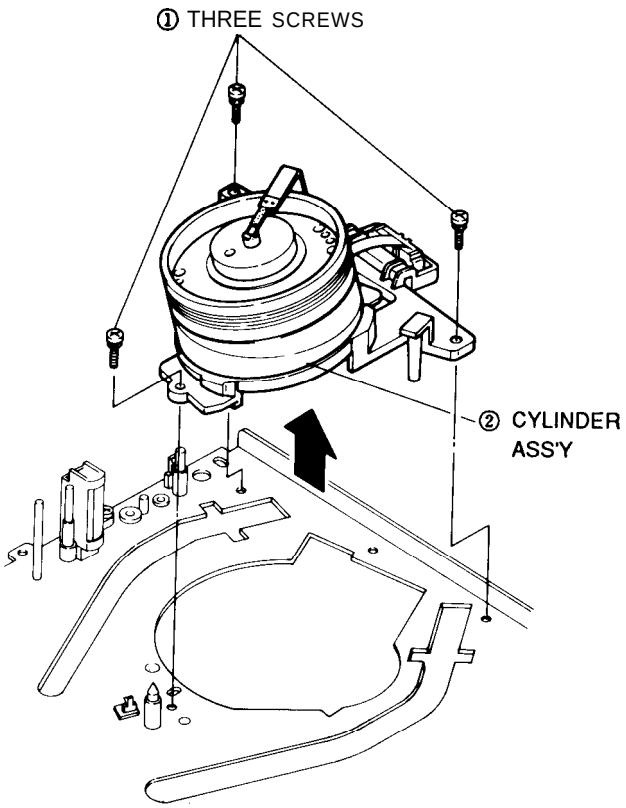
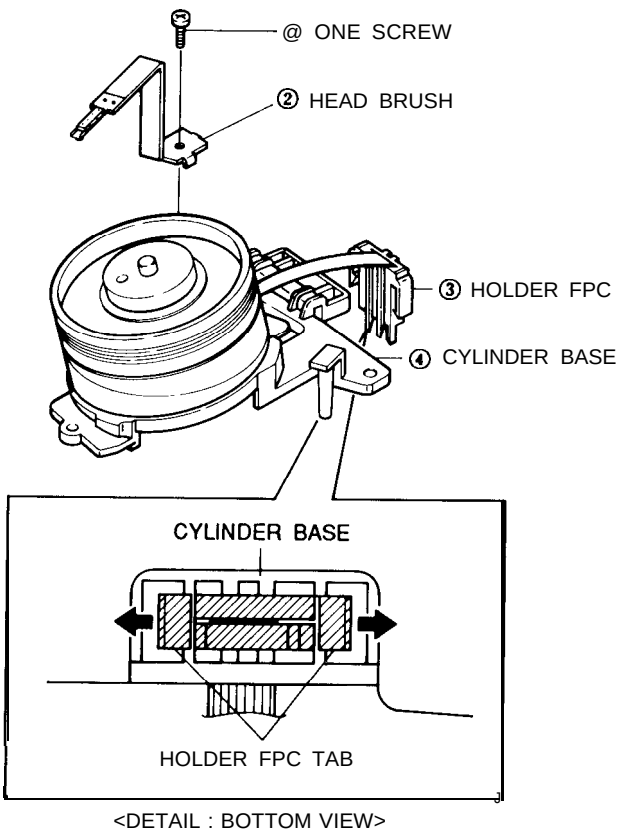


Fig. 20 Cylinder Ass'y Removal from Main Base

2-7-4. Head Brush & Holder FPC Removal

1) Remove one(1) screw ① and then lift the head brush ②.
2) Release the holder FPC tab holding the cylinder base ④ in the direction of arrow. (Refer to detail drawing)
3) Disconnect the holder FPC ③ from the cylinder base ④.

NOTE : When disconnecting the holder FPC ③ from the cylinder base ④: Take care not to disconnect the FPC cable from the holder FPC (The FPC cable is very short.).



<DETAIL : BOTTOM VIEW>

Fig. 21 Head Brush & Holder FPC Removal

2-7-5. Cylinder Ass'y Removal from Cylinder Base

1) Remove three(3) screws ① from the cylinder base ②.
2) Lift the cylinder ass'y @from the cylinder base ② in the direction of arrow.

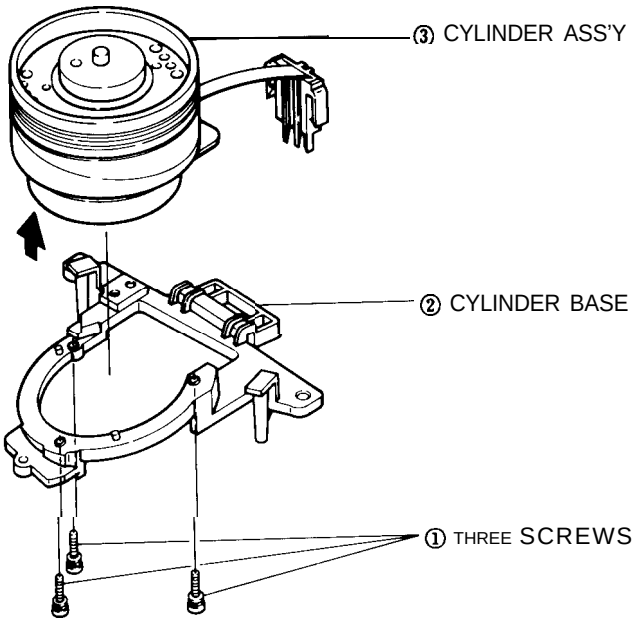


Fig. 22 Cylinder Ass'y Removal from Cylinder Base

2-7-6. Motor Rotor Removal

1) Remove two(2) screws ①.
2) Lift the retainer lever ass'y ② and the motor rotor ③

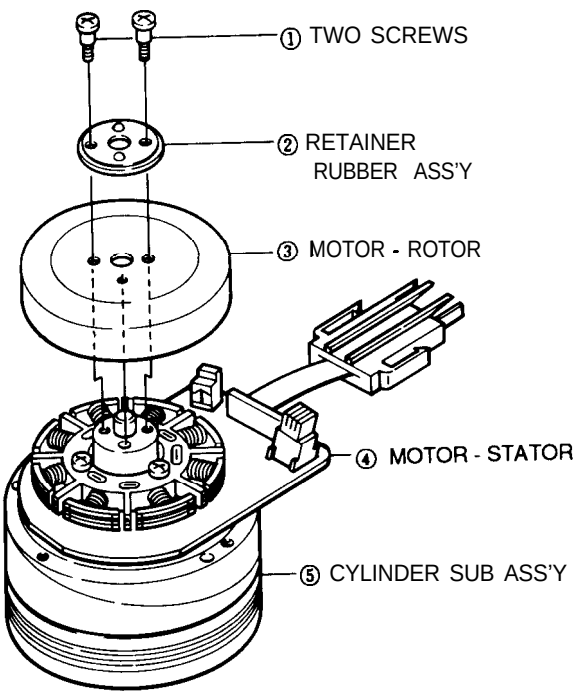


Fig. 23 Motor Rotor Removal

2-7-7. Motor Rotor & Cylinder Sub Ass'y

1) Make sure that phase matching holes of the motor rotor & the cylinder sub ass'y are aligned correctly as shown in Fig. 16 (Refer to phase matching hole)
2) Reinstall the retainer lever ass'y @and secure with two(2) screws.

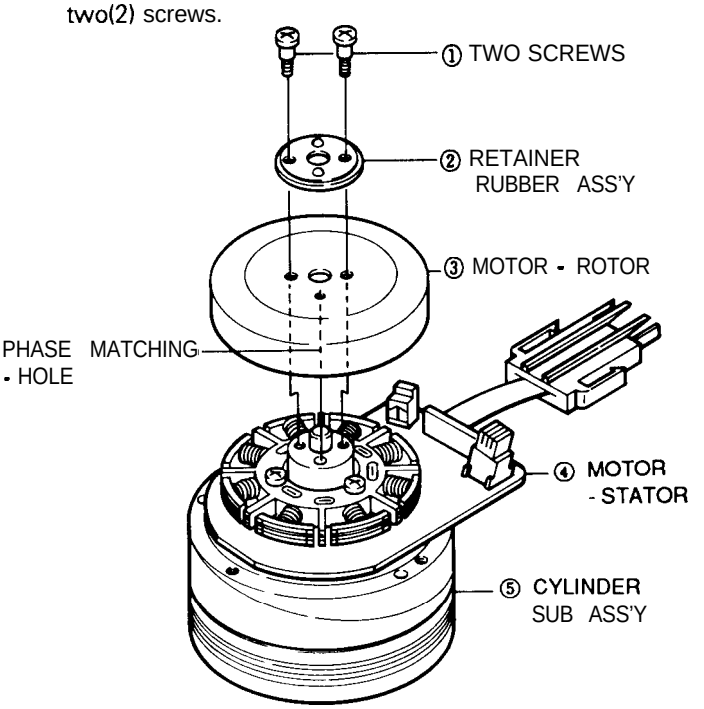


Fig. 24 Assembly of Motor Rotor & Cylinder Sub Ass'y

2-7-8. Motor Stator Removal

1) Remove three(3) screws ①.
2) Remove the motor stator ② from the cylinder sub ass'y ③.

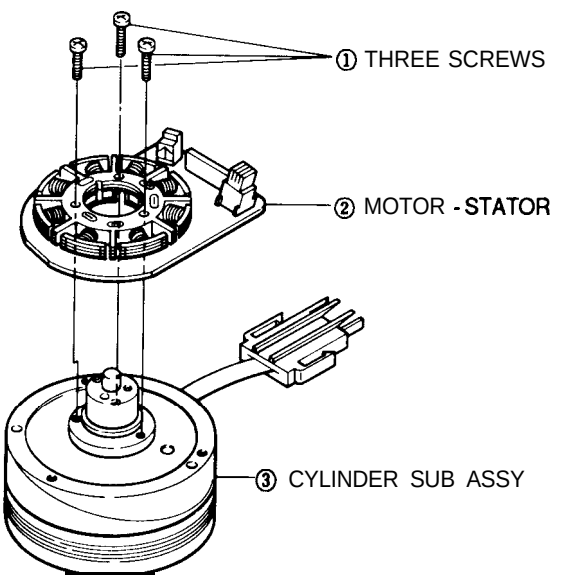


Fig. 25 Motor Stator Removal

2-7-9. Motor Stator & Cylinder Sub Ass'y

1) Reinstall the motor stator ① toward the FPC cable of cylinder sub ass'y ②.
2) Secure with three(3) screws. (Refer to Fig. 17)

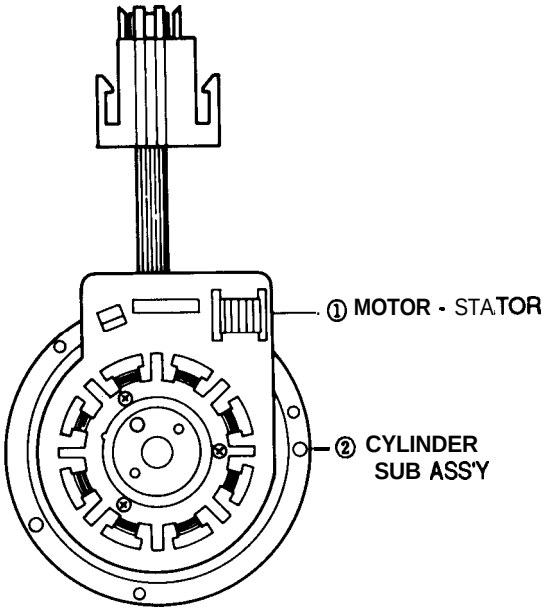


Fig. 26 Assembly of Motor Stator & Cylinder Sub Ass'y

2-8. Main Deck Removal & Reassembly

2-8-I. Slide Rack Housing Removal

1) Lift the slide rack housing in the direction of arrow.

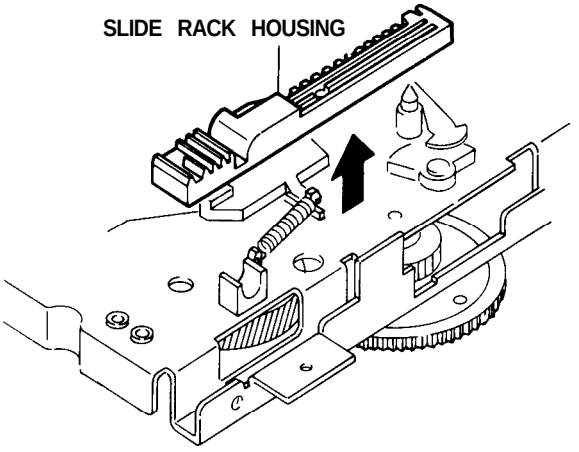


Fig. 27 Slide Rack Housing Removal

2-8-2. Assembly of Slide Rack Housing & Gear Master

1) Confirm that the hole of gear master ① and the hole 'A of main base are aligned correctly. (Eject mode)
2) Align the slot #1 of gear master ① with the tooth #1 of slide rack housing. (Refer to timing point)

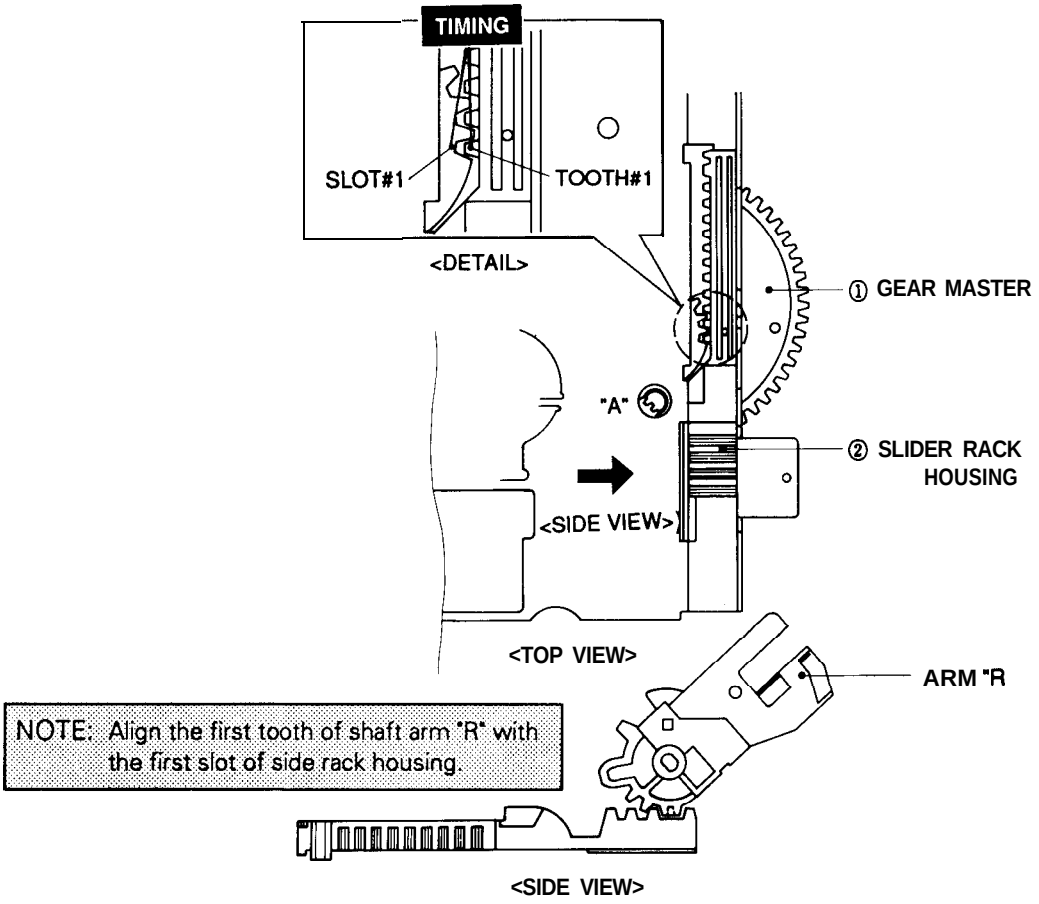


Fig. 28 Assembly of Slide Rack Housing & Gear Master

2-8-3. Brake Sub "L" Removal

1) Remove the spring brake sub "L" ①.
2) Release the tab ② in the direction of arrow.
(Refer to detail drawing)
3) Lift the brake sub "L" ③.

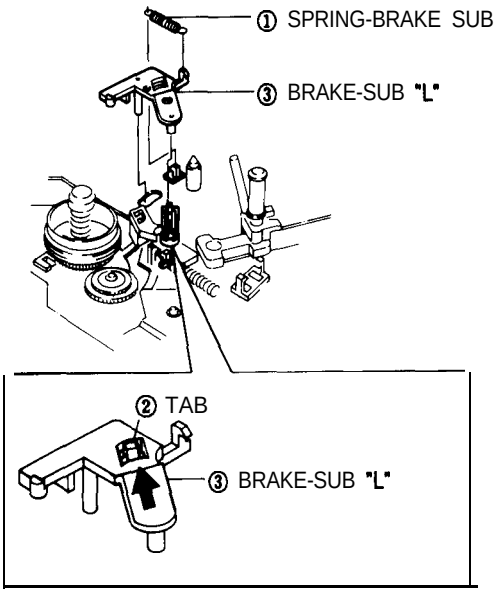


Fig. 29 Brake Sub "L" Removal

2-8-4. Arm Tension Full Ass'y Removal

1) Remove the spring tension ①.
2) Release the tab ② in the direction of arrow.
(Refer to detail drawing)
3) Lift the arm tension full ass'y ③.

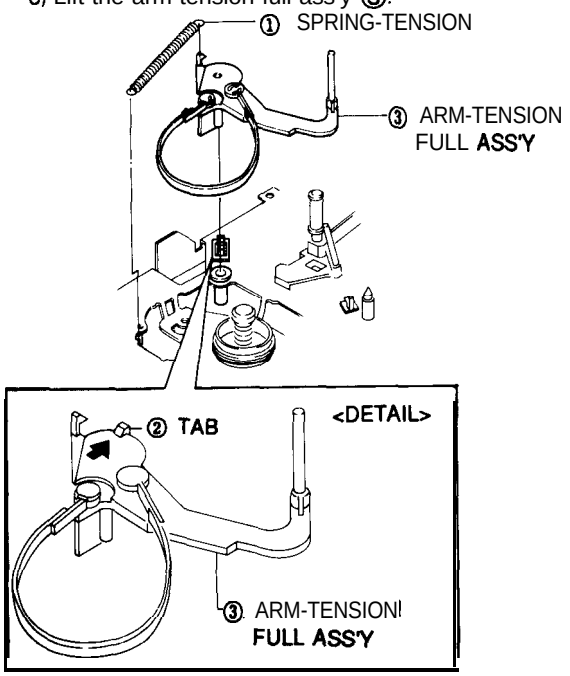


Fig. 30 Arm Tension Full Ass'y Removal

2-8-5. Reel Disk "L" Ass'y & Gear Relay "S" Ass'y Removal

1) Release the tab ① in the direction of arrow.
(Refer to detail drawing)
2) Lift the reel disk "L" ass'y ②.
3) Remove the washer plain ③.
4) Remove the washer slit ④.
5) Lift the gear relay "S" ass'y ⑤.

NOTE : When reinstalling, be sure to install the reel disk "L" ass'y ② after installing the washer plain ③.

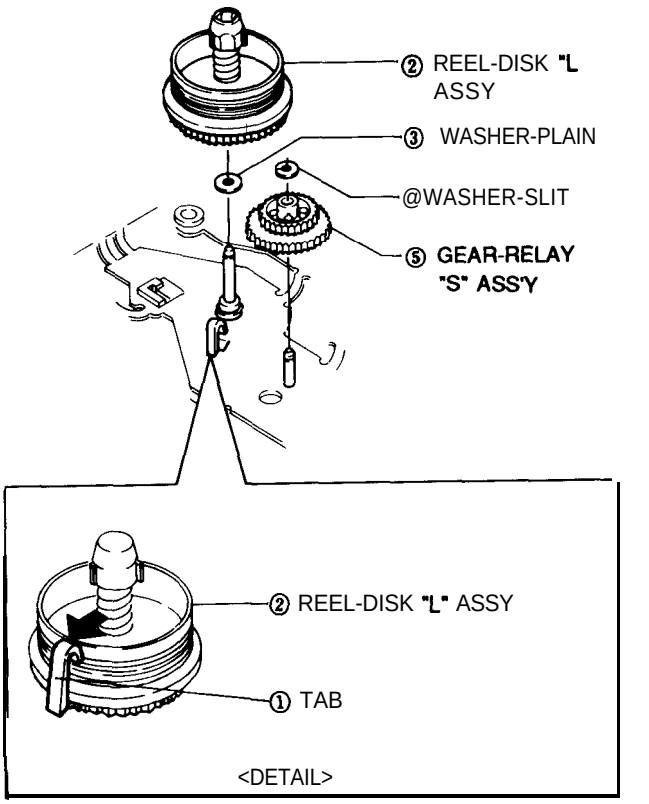
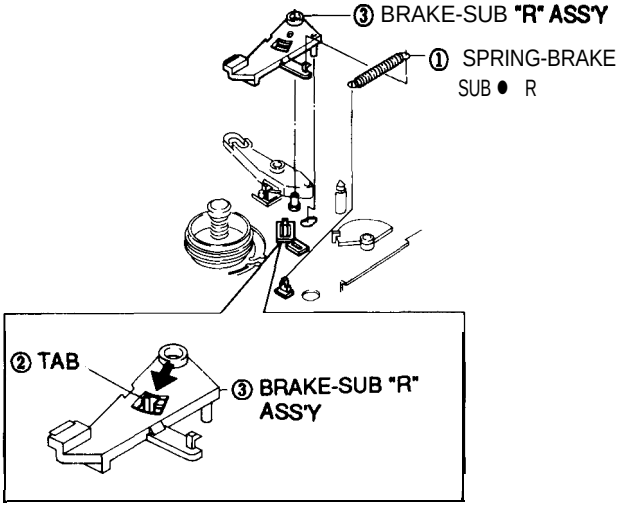


Fig. 31 Reel Disk "L" Ass'y & Gear Relay "S" Ass'y Removal

2-8-6. Brake Sub "R" Ass'y Removal

1) Remove the spring brake sub "R" ①.
2) Release the tab ② in the direction of arrow.
   (Refer to detail drawing)
3) Lift the brake sub "R" ass'y ③.



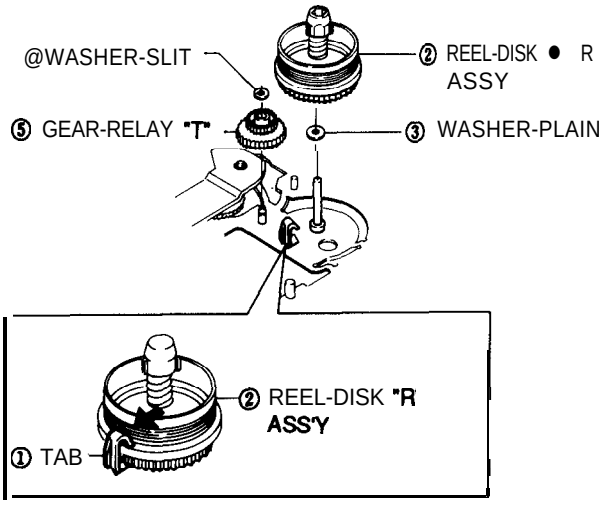
<DETAIL>

Fig. 32 Brake Sub "R" Ass'y Removal

2-8-7. Reel Disk "R" Ass'y & Gear Relay "T" Removal

1) Release the tab ① in the direction of arrow.
   (Refer to detail drawing)
2) Lift the reel disk "R" ass'y ②.
3) Remove the washer plain ③.
4) Remove the washer slit ④.
5) Lift the gear relay "T" ass'y ⑤.

NOTE : When reinstalling, be sure to install the reel disk "R" ass'y ② after installing the washer plain ③.

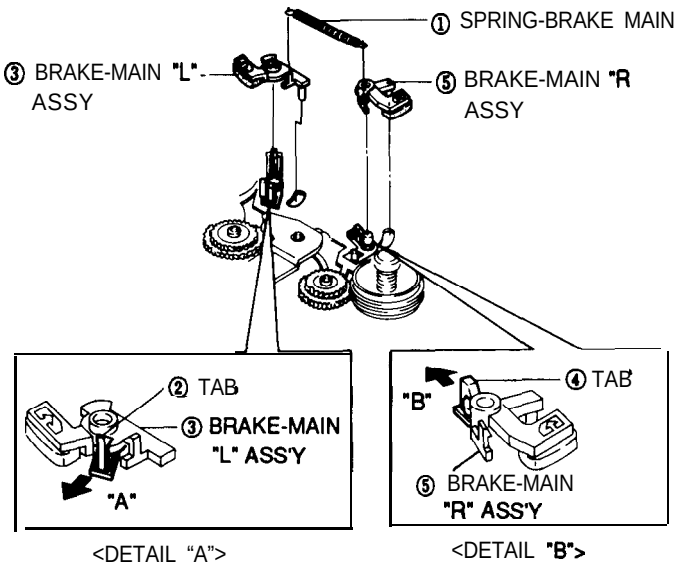


<DETAIL>

Fig. 33 Reel Disk "R" Ass'y & Gear Relay "T" Removal

2-8-8. Brake Main "L", "R" Ass'y Removal

1) Remove the spring brake main ①.
2) Release the tab ② in the direction of arrow 'A'.
   (Refer to detail drawing 'A')
3) Lift the brake main "L" ③.
4) Release the tab ④ in the direction of arrow 'B'.
   (Refer to detail drawing "B")
5) Lift the brake main "R" ⑤.



<DETAIL "A">

<DETAIL "B">

Fig. 34 Brake Main "L", "R" Ass'y Removal

2-8-9. Idler Ass'y Removal

1) Remove the washer slit ①.
2) Lift the idler ass'y ②.

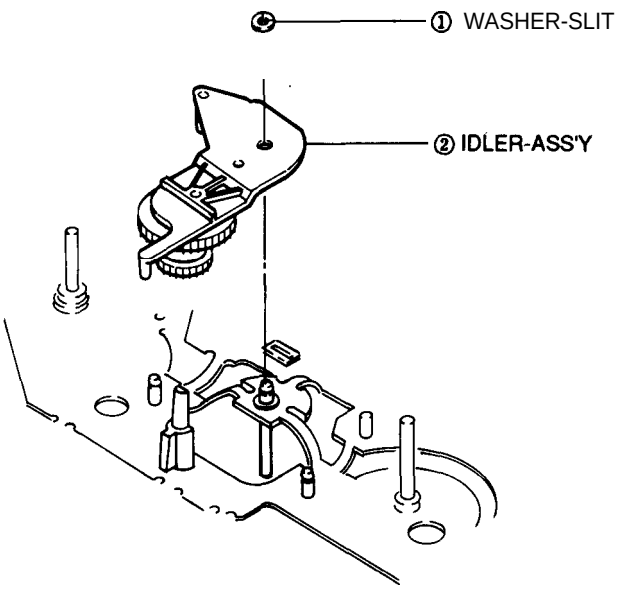


Fig. 35 Idler Ass'y Removal

2-8-10. Unit Pinch Roller Ass'y Removal

1) Remove the washer slit ①.
2) Lift the unit pinch roller ②.
3) Lift the spring arm pinch ③.

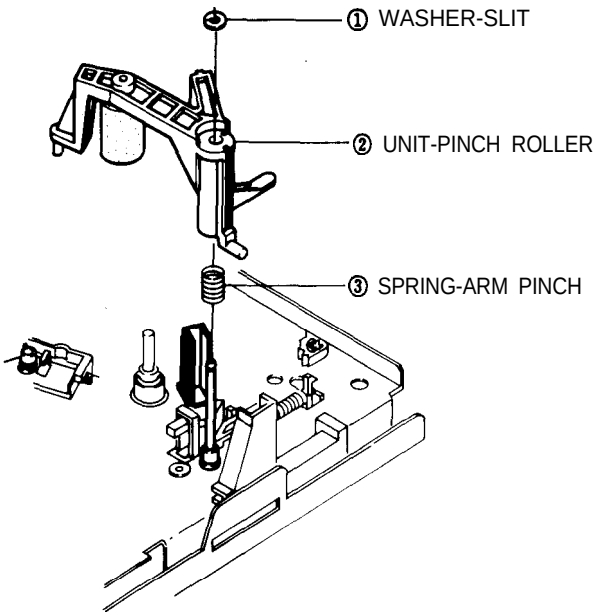


Fig. 36 Unit Pinch Roller Ass'y Removal

2-8-11. Assembly of Unit Pinch Roller

1) Install the unit pinch roller as shown in Fig. 29. (Refer to A, B)

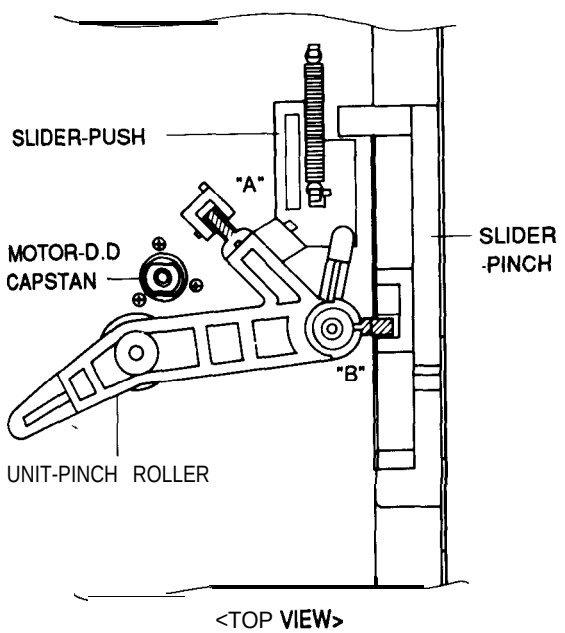


Fig. 37 Assembly of Unit Pinch Roller

2-8-12. Exploded View of Lever Pinch Comp Ass'y, Lever Pinch Cam, Arm Review Ass'y & Lever Review Ass'y

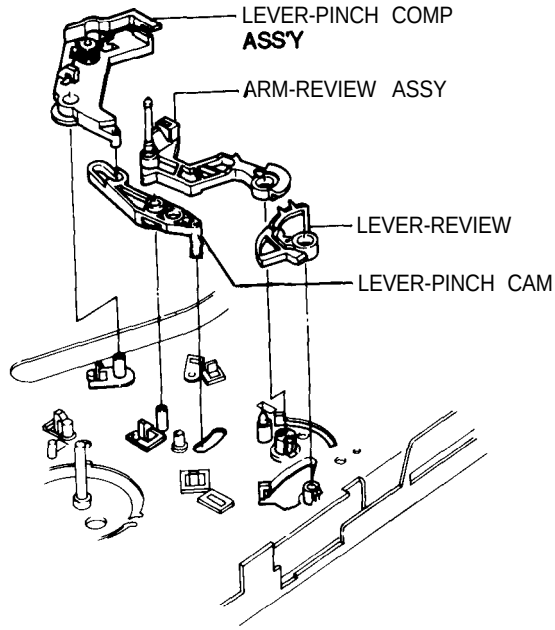


Fig. 38 Exploded View of Lever Pinch Comp Ass'y, Lever Pinch Cam, Arm Review Ass'y & Lever Review Ass'y

2-8-13. Lever Pinch Comp Ass'y Removal

1) Release the tab ① in the direction of arrow. (Refer to detail drawing)
2) Lift the lever pinch comp ass'y ②.

NOTE : Don't touch the lever pinch comp ass'y ① to audio head base during removal.

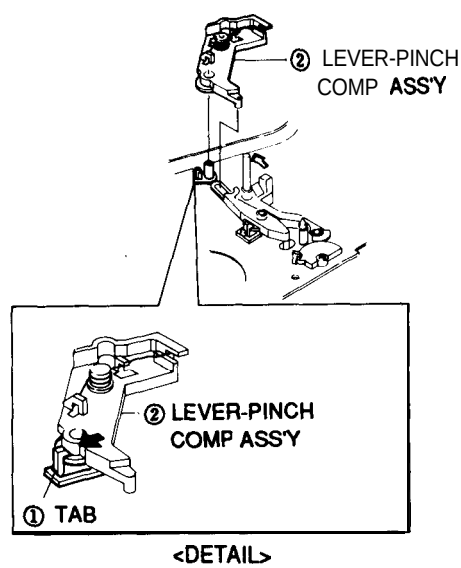


Fig. 39 Lever Pinch Comp Ass'y Removal

2-8-14. Lever Pinch Cam Removal

1) Release the tab ① in the direction of arrow.
(Refer to detail drawing)
2) Lift the lever pinch cam ②.

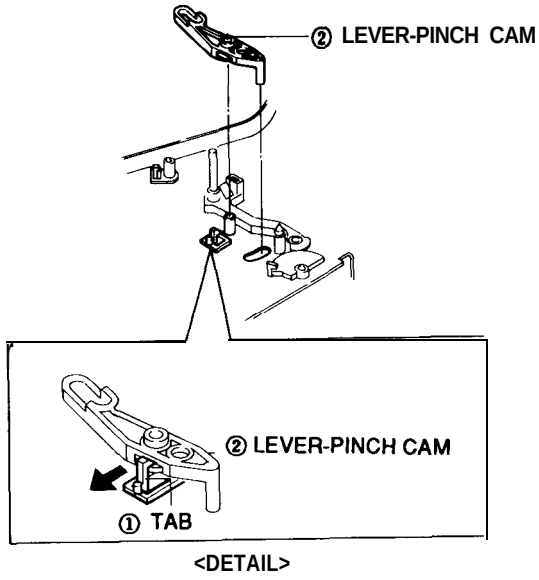
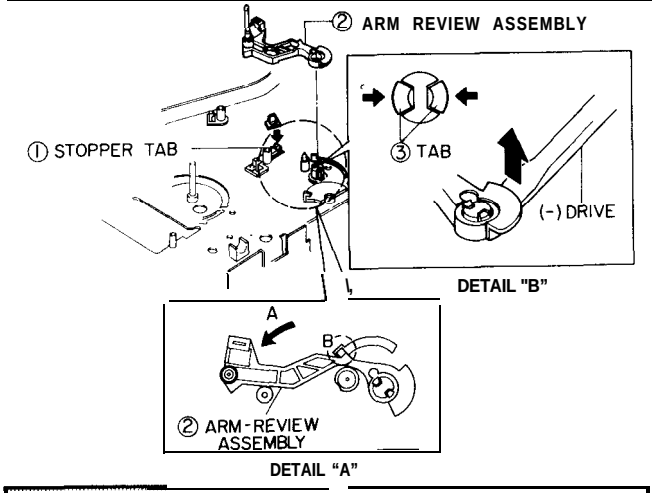


Fig. 40 Lever Pinch Cam Removal

2-8-I 5. Arm **Review Ass'y Removal**

1) Push the stopper tab ① in the direction of arrow.
2) Pull the arm review ass'y ② in the direction of arrow 'A' and then confirm 'B'. (Refer to detail drawing 'A')
3) Release the tab ③ in the direction of arrow and then lift the arm review ass'y ②.

NOTE : Take extreme care not to damage when removing the arm review ass'y ②.
(B part of detail drawing A)



NOTE: Be sure to remove the arm review assy with using the(-)driver

Fig. 41 Arm Review Ass'y Removal

2-8-18. Lever Review Removal

1) Release the tab ① in the direction of arrow.
(Refer to detail drawing)
2) Lift the lever review ②.

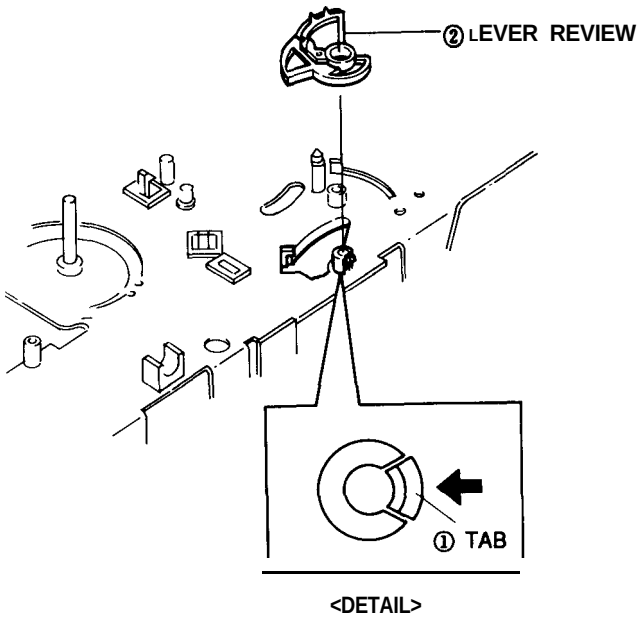


Fig. 42 Lever Review Removal

2-8-17. **Belt** Capstan **Removal**

1) Remove the belt capstan ①.

NOTE : Take extreme care not to touch the grease when removing or reinstalling.

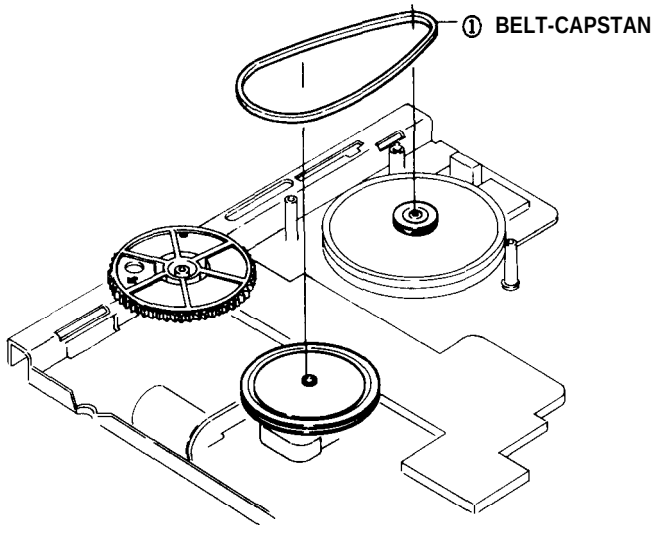


Fig. 43 Belt Capstan Removal

2-8-18. Brake Capstan Ass'y Removal

1) Remove the spring brake capstan ①.
2) Release the tab ② in the direction of arrow.
(Refer to detail drawing)
3) Lift the brake capstan ass'y ③.

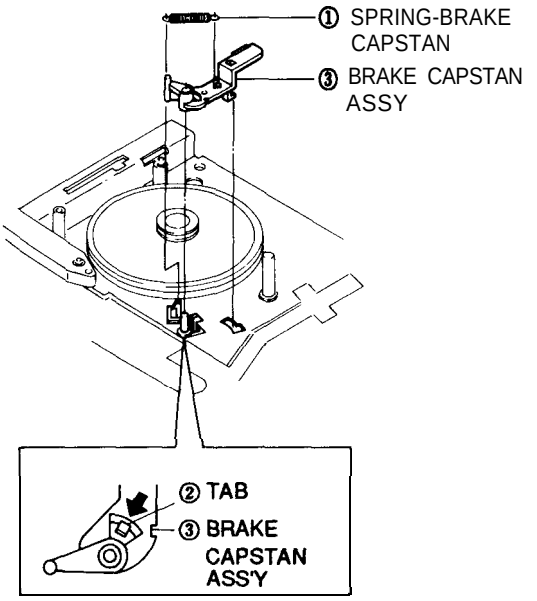
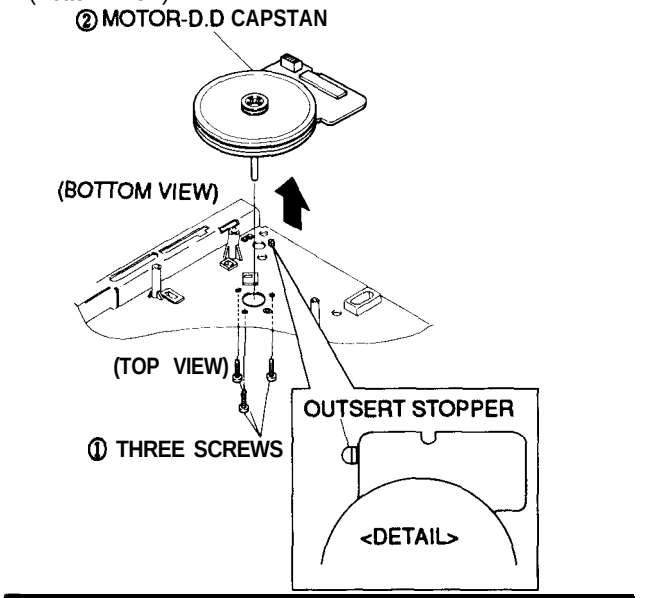


Fig. 44 Brake Capstan Ass'y Removal

2-8-19. Motor D.D Capstan Removal

1) Remove three(3) screws ①. (Top view)
2) Lift the motor D.D capstan ② in the direction of arrow.
(Bottom view)



NOTE: When reassembing motor - D.D capstan@,. align side of capstan wafer with stopper as shoun figure.

Fig. 45 Motor D.D Capstan Removal

2-8-20. Clutch Ass'y Removal

1) Remove the washer slit ①.
2) Lift the clutch **ass'y** ②.
3) Remove the washer plain ③.

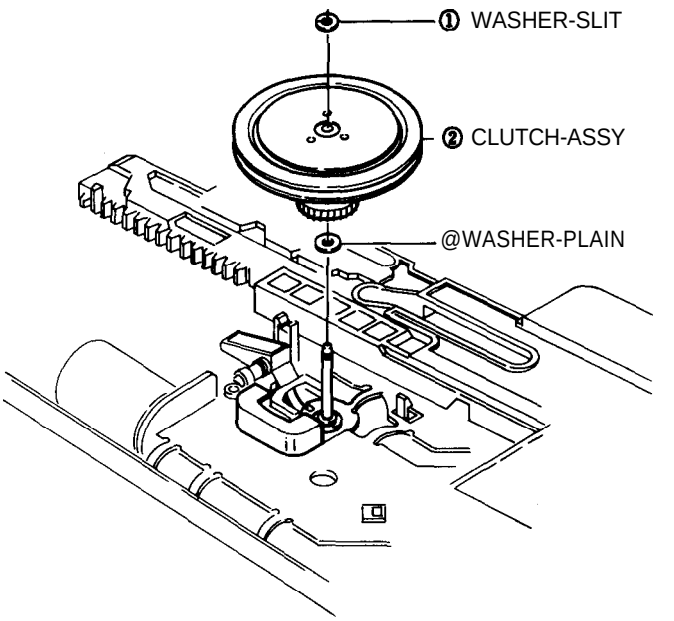


Fig.46 Clutch Ass'y Removal

2-8-21. Gear Master Removal

1) Remove the washer slit ①.
2) Lift the gear master ②.

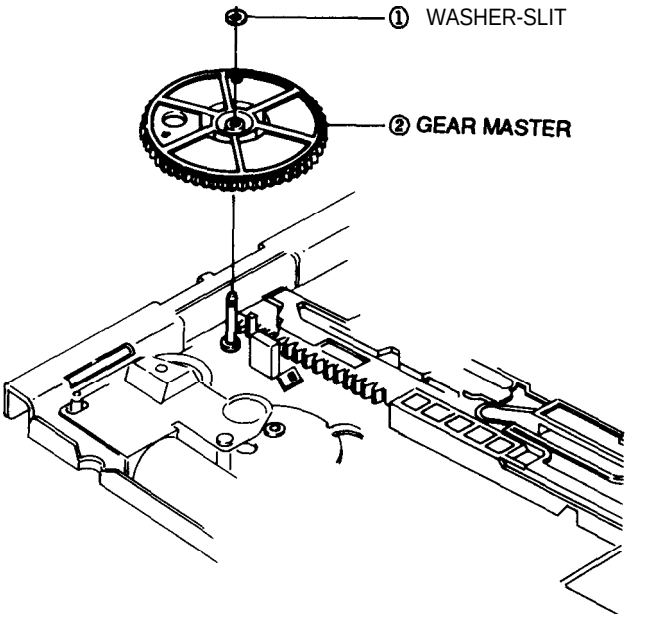


Fig. 47 Gear Master Removal

2-8-22. Assembly of Gear Master

1) When reinstalling, be sure to align the arrow mark of gear master ① with gear home of gear worm wheel ② (Refer to timing point)

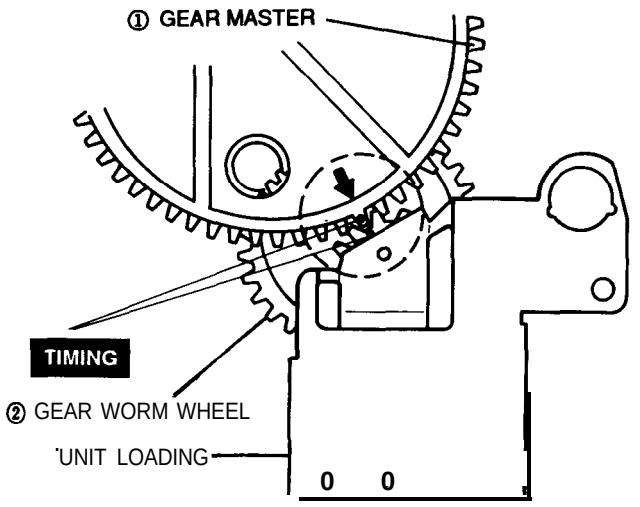


Fig. 48 Assembly of Gear Master

2-8-23. Unit Loading Removal

1) Remove two(2) screws ①.
2) Lift the unit loading ② in the direction of arrow.

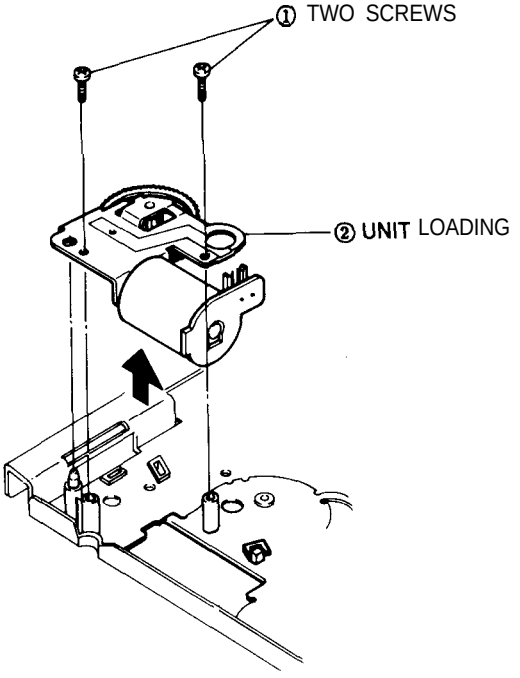


Fig. 49 Unit Loading Removal

2-8-24. Lever Slide Pinch Removal

1) Remove the washer slit ①.
2) Lift the lever slide pinch ②.

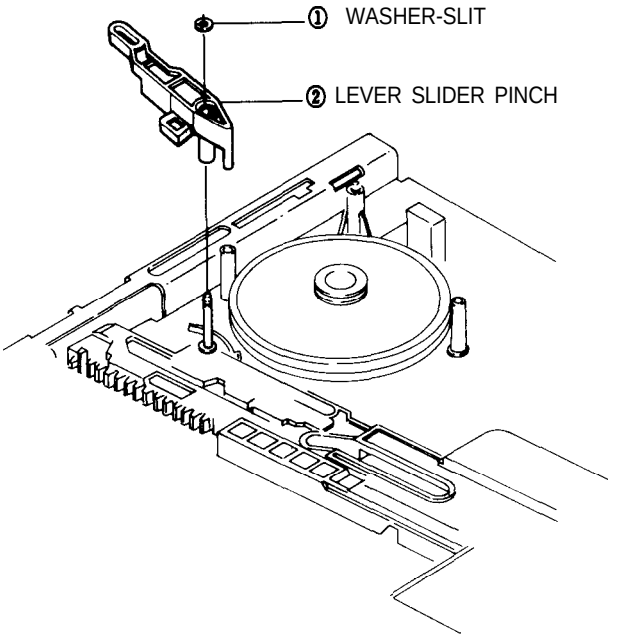


Fig. 50 Lever Slide Pinch Removal

2-8-25. Assembly of Lever Slide Pinch

1) Pull the slide pinch @to the end in the direction of arrow.
2) Insert the slide pinch ① into the hole of lever slide pinch ②. (Refer to 'A' part)

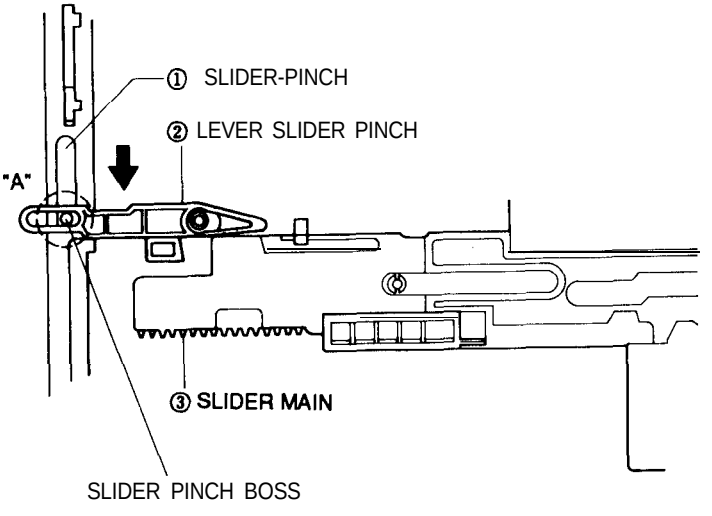


Fig. 51 Assembly of Lever Slide Pinch

2-8-28. Slide Main Removal

1) Remove the washer slit ①.
2) Release three(3) tabs ②, ③, ④ in the direction of arrow.
3) Lift the slide main ⑤.

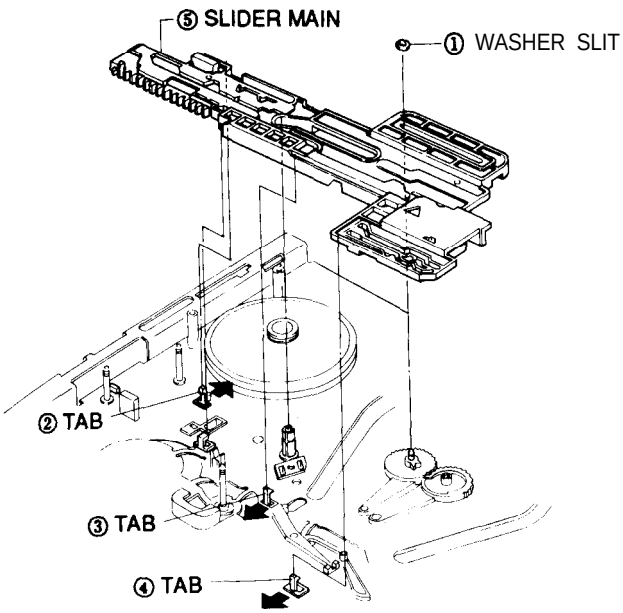
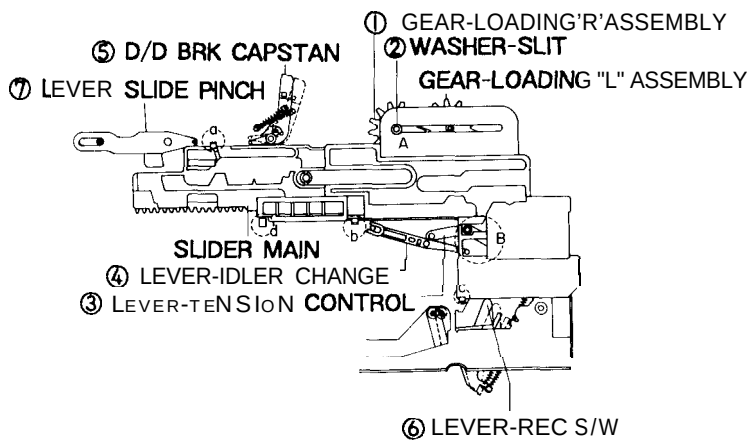


Fig. 52 Slide Main Removal

2-8-27. Assembly of Slide Main

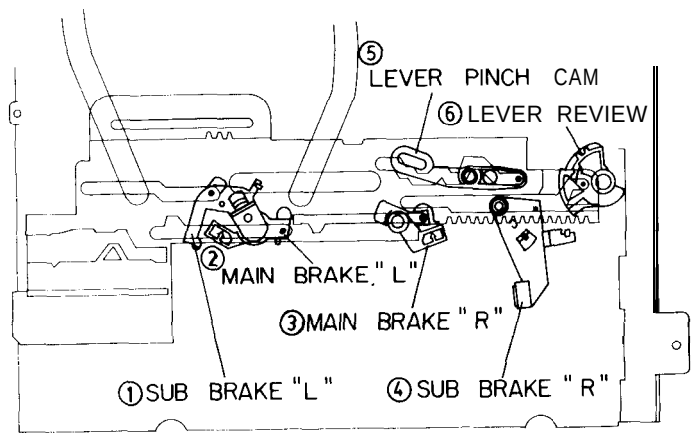
1) Install the shaft of gear loading 'R' ass'y into the left of the main slide hole and secure with the washer slit ②. (Refer to 'A')
2) Insert the lever tension control ③ and the lever idler change ④ into the slide main hole. (Refer to **'B')**
3) After confirming the above items 1), 2) install the slide main and secure with tabs (a, b, c).

NOTE: Be sure to assemble the side main when the gear loading Vr assy is inunloading posision.



NOTE : Seven parts should be installed into the side main hole.

Fig. 53 Assembly of Slide Main (Bottom view)



NOTE: Six parts should be installed into the **side main hold.**

Fig. 54 Assembly of side Main(Top view)

2-8-28. Lever Shift Ass'y Removal

1) Hang the spring lever shift ① to the claw of the lever shift ③. (Refer to detail drawings "A", 'B')
2) Release the tab ② in the direction of arrow.
3) Lift the lever shift ③.

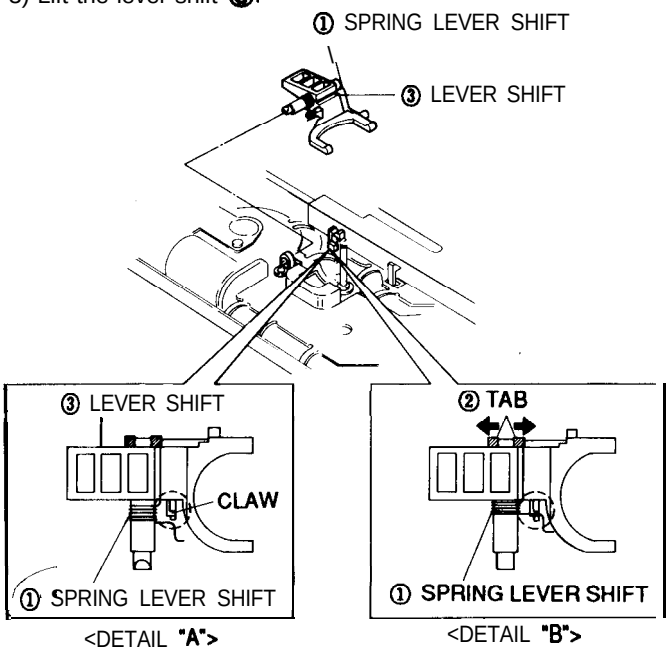


Fig. 55 Lever Shift Ass'y Remova

2-8-29. Lever Idler Change Removal

1) Release the tab ① in the direction of arrow. (Refer to detail drawing)
2) Lift the lever idler change

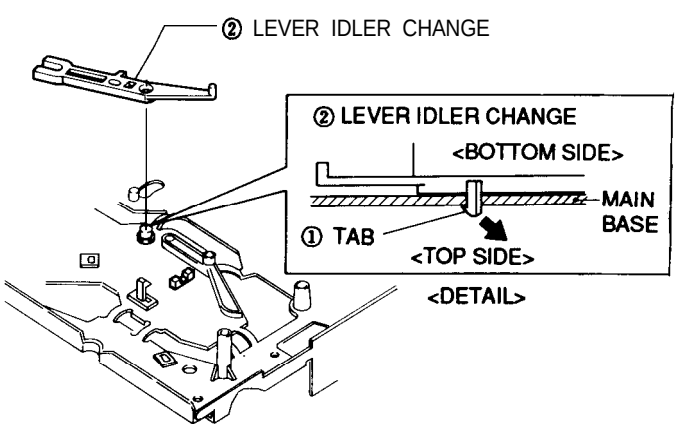


Fig. 56 Lever Idler Change Remo

2-8-30. Gear Loading "L", "R" Ass'y Removal

1) Remove the gear loading "R" ass'y ② from the slide guide roller "T" ③ by pushing the spring loading "R" ① in the direction of arrow. (Refer to detail drawing 'A')
2) Remove the gear loading "L" ass'y ⑤ from the slide guide roller "S" ⑥ by pushing the spring loading "L" ④ in the direction of arrow. (Refer to detail drawing 'B')
3) Lift the gear loading "R" ass'y ②.
4) Lift the gear loading "L" ass'y ⑤ by pushing the tab ⑦ of the gear loading "L" ass'y ⑤. (Refer to detail drawing 'C')

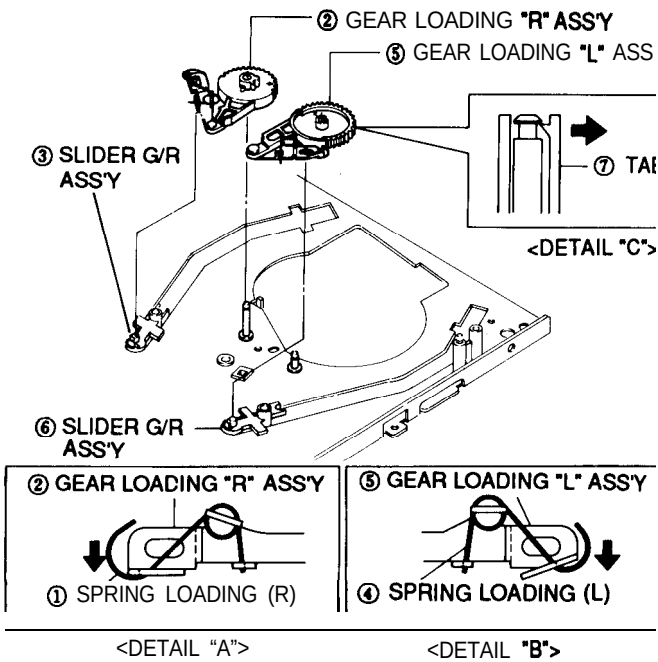


Fig. 57 Gear Loading "L", "R" Ass'y Removal

2-8-31. Gear Loading "L", "R" Ass'y

1) When reinstalling, be sure to align two arrows as shown in Fig. 58. (Refer to timing point)

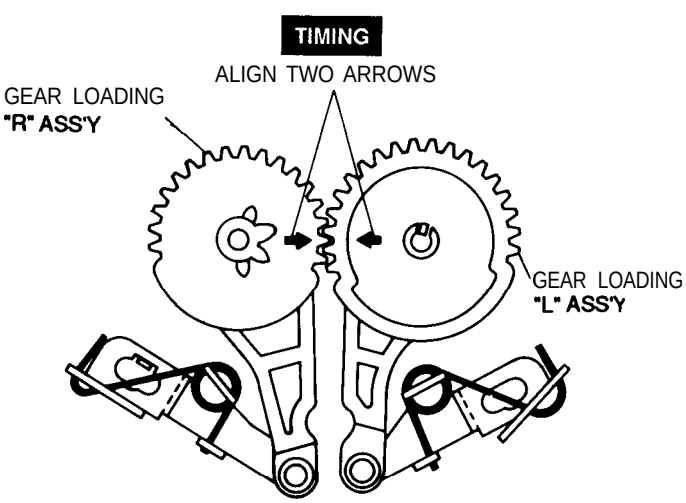


Fig. 58 Assembly of Gear Loading "L", "R" Ass'y

2-8-32. Slide Pinch Removal

1) Push the tab ① in the direction of arrow 'A'.
(Refer to detail drawing)
2) Lift the slide pinch ② in the direction of arrow "B".

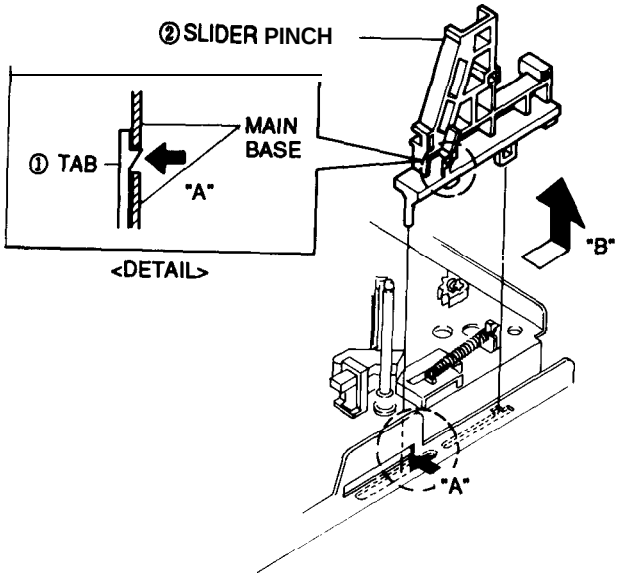


Fig. 59 Slide Pinch Removal

2-8-33. Slide Push Removal

1) Remove the spring slide push ①.
2) Push the slide push ② in the direction of arrow 'A'.
3) Lift the slide push ② by pushing the tab ③ in the direction of arrow "B". (Refer to detail drawing)

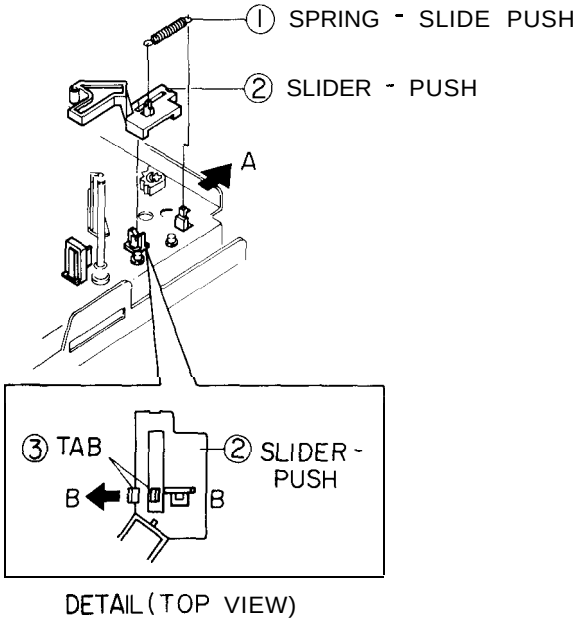


Fig. 60 Slide Push Removal

2-8-34. Prism LED Removal

1) Release the tab ① in the direction of arrow.
(Refer to detail drawing)
2) Lift the prism LED ②.

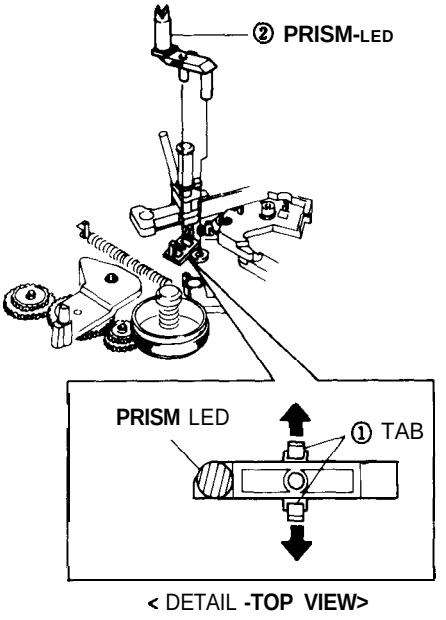


Fig. 61 Prism LED Removal

2-8-35. Lever Record Switch Removal

1) Remove the spring record switch ①.
2) Release the tab ② in the direction of arrow.
(Refer to detail drawing)
3) Lift the lever record switch ③.

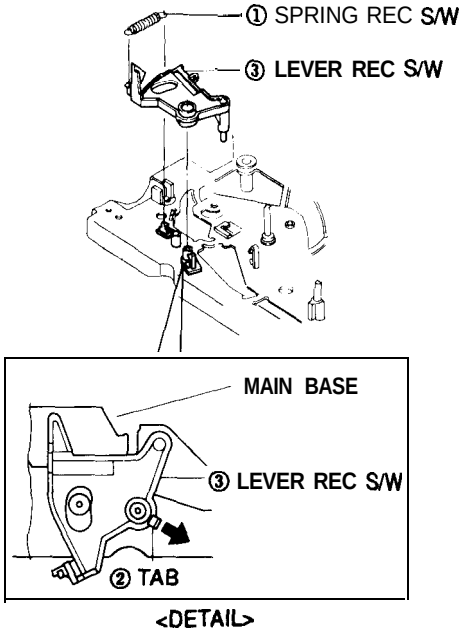


Fig. 62 Lever Record Switch Removal

2-8-36. Full Erase Head Removal

1) Remove one(1) screw ①.
2) Lift the magnet WE head ②.

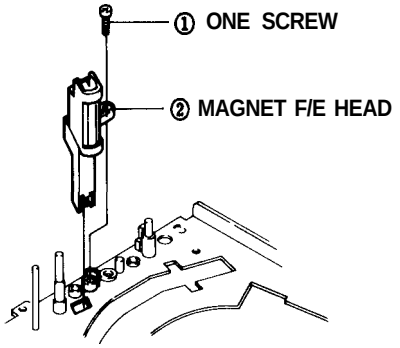


Fig. 63 Full Erase Head Removal

2-8-37. ACE Head Removal & Reassembly

1) Release the tab ① holding holder ACE toward arrows. (Refer to detail drawing 'A')
2) Remove one(1) screw ②.
3) Lift the magnet ACE head ass'y ③.

Assembly : When reinstalling, be sure to align the three teeth of X-Position adjustment gear with the two slot of ACE head base.
NOTE : When adjusting the X-position adjustment gear using (+) driver, do not adjust by force.

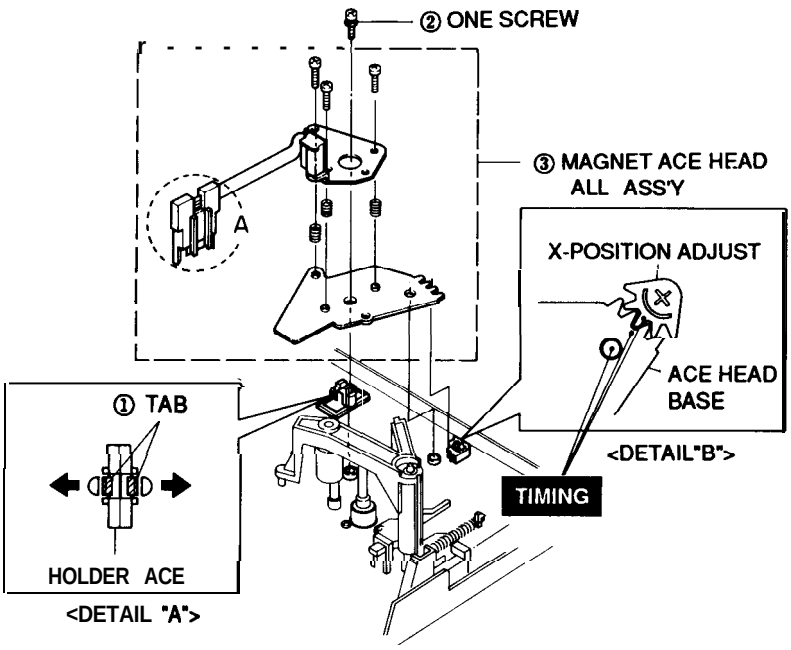


Fig. 64 ACE Head Ass'y Removal & Reassembly

2-8-38. Slide Guide Roller "S", "T" Ass'y Removal

1) Remove the cylinder ass'y from the main base. (Refer to Fig. 19, 20)
2) Remove the slide "S", "T" from the gear loading "L", "R ass'y. (Refer to Fig. 58)
3) Move the guide roller 'S', "T" ass'y to slot and then lift it to remove. (Refer to arrow)

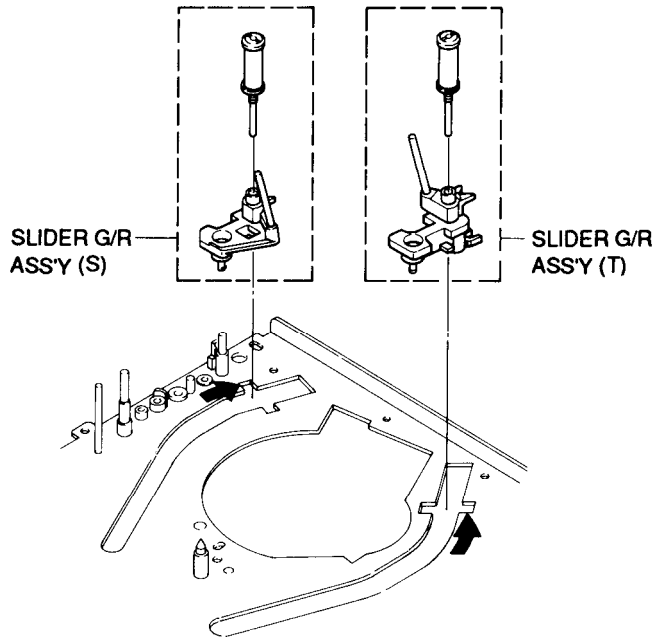


Fig. 65 Slide Guide Roller "S", "T" Ass'y Removal

2-8-39. Slide Guide Roller "S", "T" Ass'y (When all parts except the cylinder assembly are removed.)

1) Push four(4) Lever Locks ① of the housing ass'y Simultaneously. (Refer to Fig. 66)
2) Push the holder cassette ass'y @toward arrow "B" while turning the gear master ② toward arrow 'A'. (Refer to Fig. 66)
3) Load the gear loading L, R ass'y ④, ⑤ to the middle position of guide rail by turning the gear master ② toward arrow "A". (Refer to Fig. 66, 67)
4) Install the slide guide roller S, T ⑥, ⑦ into rail slot and then move it to the position of gear loading L, R ass'y ④, ⑤. (Refer to Fig. 67)
5) Turn the gear master ② toward arrow 'A'. (Eject mode)

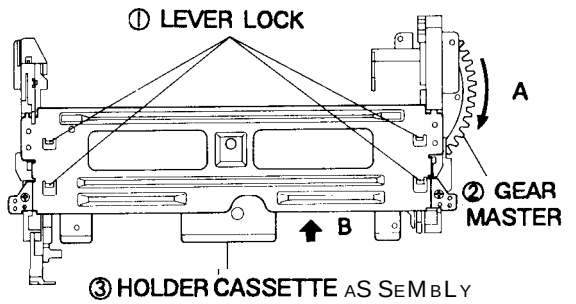


Fig. 66 How to operate the Housing Ass'y

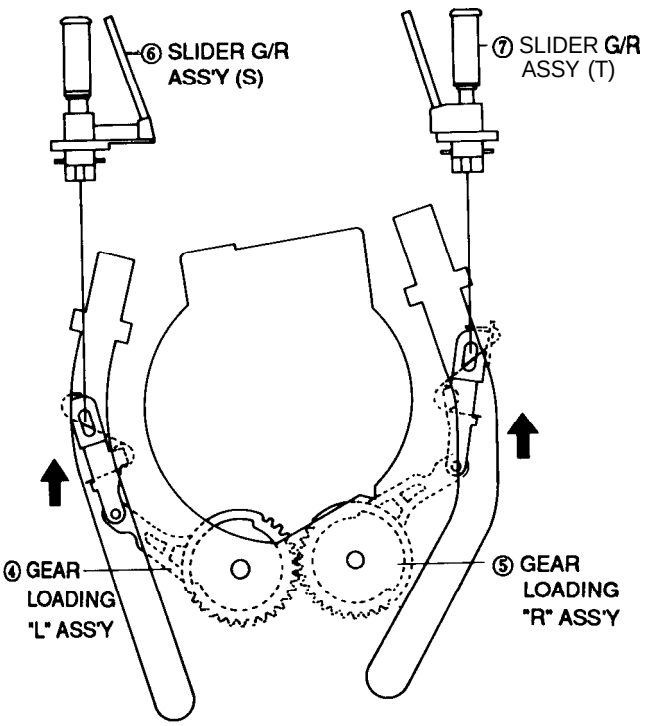


Fig. 67 Assembly of Slide Guide Roller "S", "T" Ass'y

3-2. TAPE TRANSPORT SYSTEM

Note : the tape transport system has been adjusted precisely in the factory. Alignment is not necessary except for the flowing:
* Noises observed on the screen.
* Tape damage.
* Parts are replaced in the tape transport system.

3-2-I. Location of Tape Transport Adjustment (Adjustment Reference)

The lower flange height of the tape guide is used as the basic reference point for transport adjustments.
To keep the height of the tape guide, do not apply excessive force onto the main base to prevent damage.

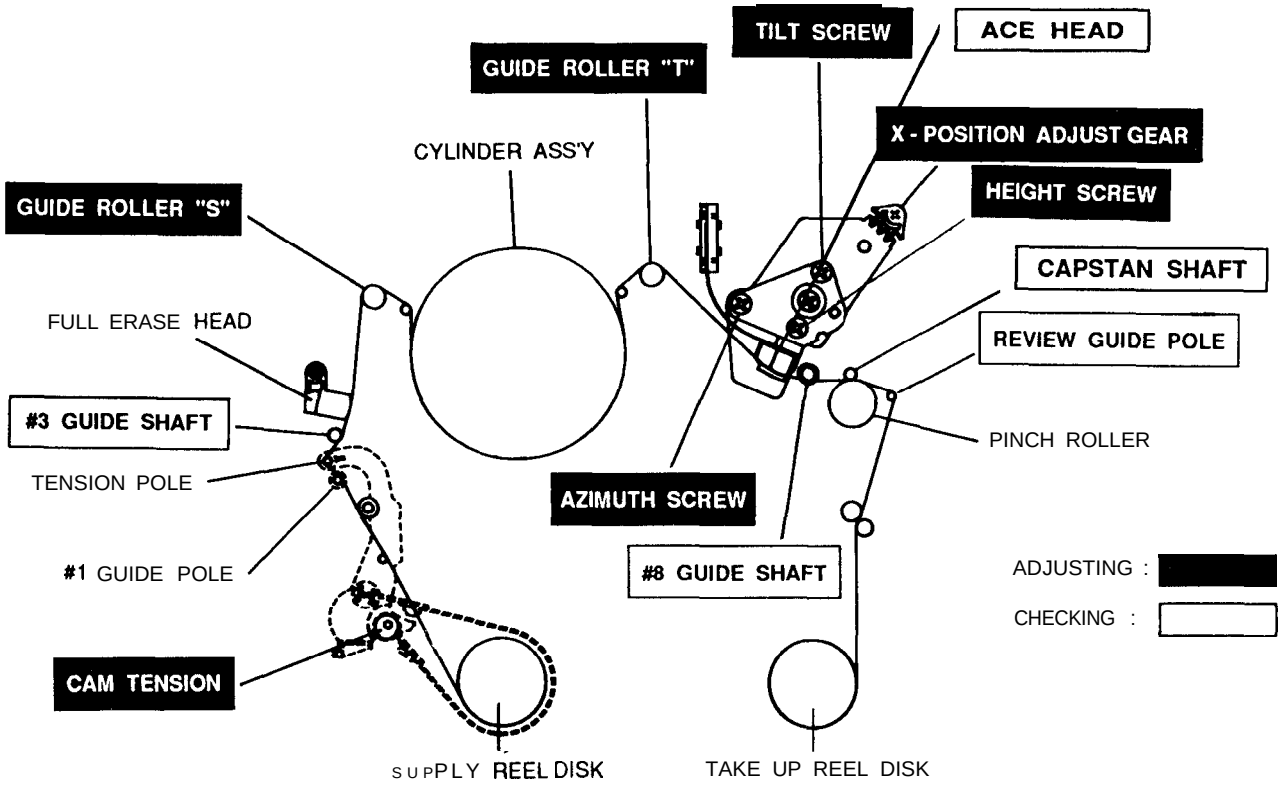


Fig. 1 Location of Tape Transport Adjustment

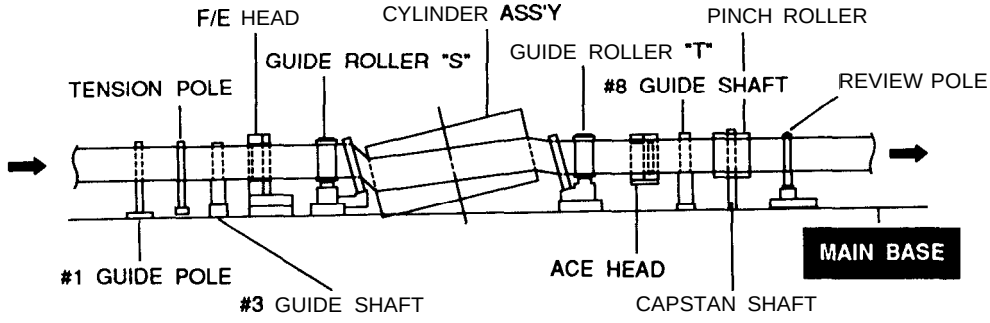


Fig. 2 Tape Travel Diagram

3-2-2. Tape Transport System Adjustment

1) Pm-adjustment

When parts are replaced, perform the required adjustments by referring to the procedures for the tape transport system. When parts are replaced, the tape path may be changed.
First run a T-l 60 tape and be sure excessive tape wrinkle does not occur at any tape guide.

1. If tape wrinkles at the S, T-guide rollers, turn the S,T-guide rollers until the wrinkle disappears.
2. If tape still wrinkles at the tape guide, do the tilt adjustment of the A/C head.

2) Adjustment procedures

1. A/C head assembly adjustment

Test Point : TP302 (Envelope)
TP804 (Audio Out)
TP202 (H'D SW Pulse - Trigger)
TP201 (Control Pulse)
Test Tape : ST-N1
(Blank Tape (T-160)

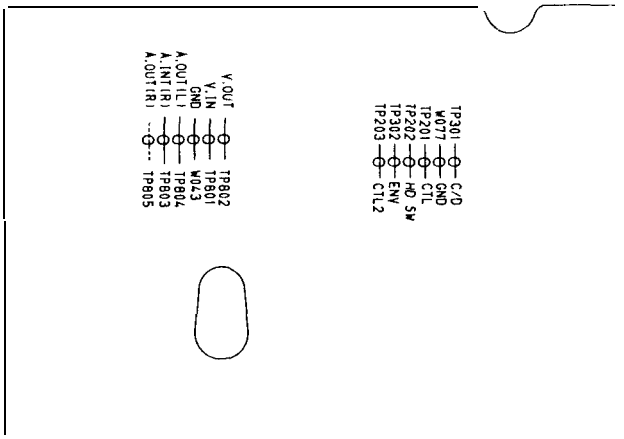


Fig. **3** Location of Test Point (Main PCB)

a. A/C head height adjustment

1. Run the alignment tape (ST-N1) in the playback mode.
2. Observe the surface of the audio head using a dental mirror.
3. Turn screws(A), (B), (C) clockwise or counterclockwise until the gap of the lower tape edge and the lower edge of the control head is about 0.25 mm. (Refer to Fig. 4. and 5.)

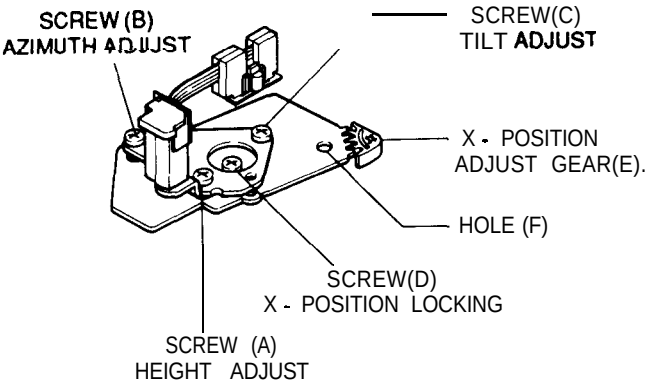


Fig. 4 Location of A/C Head Adjustment Screw

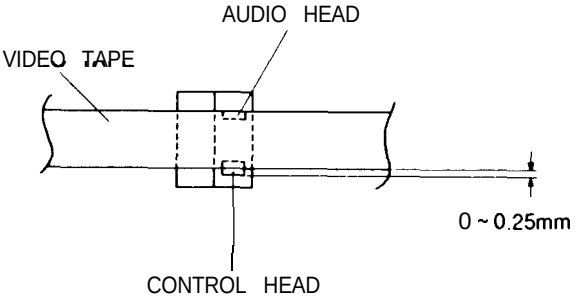


Fig. 5 A/C Head Height Adjustment

b. A/C head tilt adjustment

1. Playback a T-160 tape and observe the position of the tape at the lower flange of the tape guide.
2. Confirm that there is no curl or wrinkle at the lower flange of the tape guide, as shown in Fig. 6 (B).
3. If a curls or wrinkle of the tape has occured, slightlyturn the screw (C) tilt adjust on the A/C head ass'y clockwise until it disappears, as shown in Fig. 6 (B)
4. Reconfirm the A/C head height.

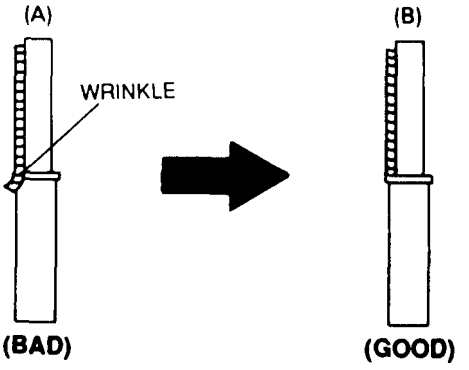


Fig. **6** Tape Guide Check

c. Audio azimuth adjustment

1. Playback the alignment tape (ST-N1)
2. Connect the channel-I scope probe to TP804.
3. Adjust screw (B) vertically to achieve maxrmum audio level. (See Fig. 4)

d. A/C head position (X-Point) adjustment

1. Playback the alignment tape (ST-N1).
2. Connect the CH-1 scope probe to TP202.
3. Connect the CH-2 scope probe to TP201 and trigger head switching pulse.
4. Set the tracking preset to "6 5 ms" using the tracking button ▲/▼ of remote control. (Refer to Fig. 7 and 8)
5. Connect the CH-1 scope probe to TP302 and the CH-2 scope probe to TP202 trigger on CH-1.
6. Turn the screw (E) counterclockwise (See Fig. 4).
7. Insert the adjusting driver (+) into X-positron adjusting gear Adjust the driver in either direction for maxrmum envelope waveform.

NOTE : Since the adjusting gear unit may be damaged, do not adjust by force when adjusting the X-point using the adjusting driver (+). After turn the X-point adjusting screw(D) counterclockwise a little, preform the adjustment After adiustiment is completed, tighten the screw.

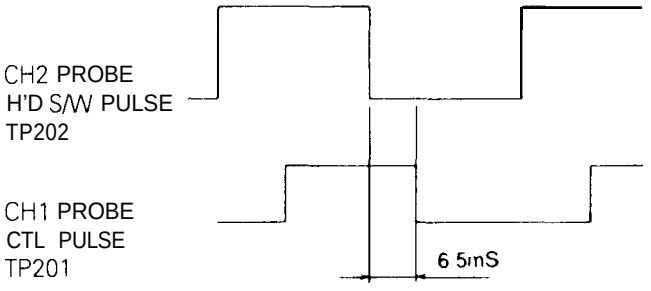


Fig. 7 Tracking Preset Adjustment

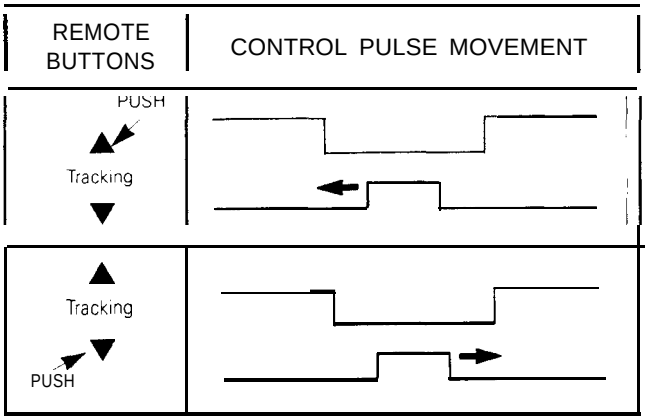


Fig. 8 Control Pulse Adjustment

2. Linearity adjustment (S,T-guide rollers adjustment)

Test Point : TP302 (Envelope)
TP202 (H'D SW Pulse - Trigger)
Test Taoe : (Mono Scope ; 7KHz)

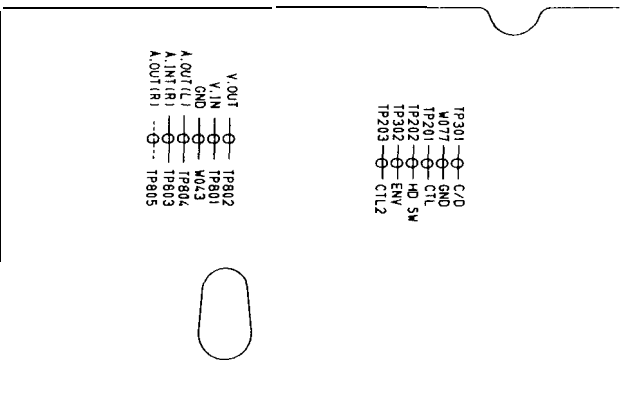
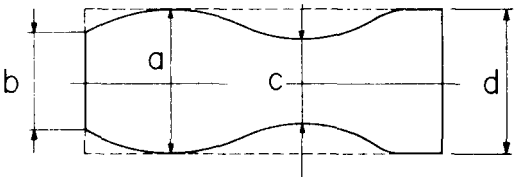


Fig. 9 Location of Test Point (Main PCB)

1 Playback the alignment tape (Mono Sccope ; SP)
2. Observe the video envelope signal on an oscilloscope triggered by the head switching pulse.
3. Make sure the video envelope waveform (in its minimum or maxrmum output) meets the specification shown in Fig. 10. If it does not, adjust as follows ;

NOTE :
a=Maximum output of the video RF envelope.
b=Minimum output of the video RF envelope at the entrance side.
c=Minimum output of the video RF envelope at the center point.
d=Minimum output of the video RF envelope at the exit side.



$b,d/a \geq 0.70$
$c/a \geq 0.85$

Fig. 10 Envelope Waveform Adjustment

4. If the section A in Fig. 11 does not meet the specification, adjust the S-guide roller up or down
5. If the section B in Fig. 11 does not meet the specification, adjust T-guide roller up or down.

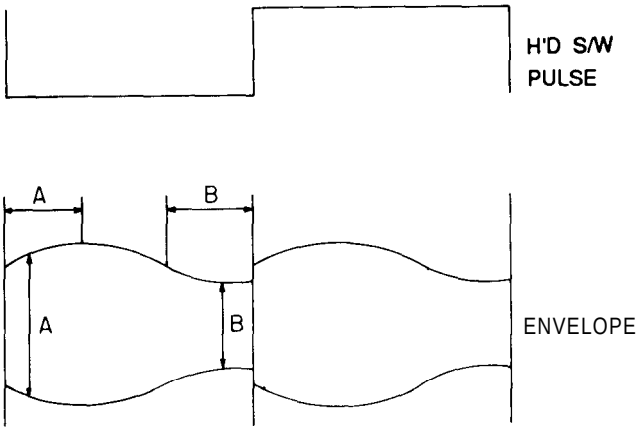


Fig. 11 Adjustment Points

6 Slightly loosen the set screw at the lower part of the S, T-guide rollers with a (Hex Wrench -0.9mm) so that the guide roller can be adjusted with reasonable tightness. (Refer to Fig. 12)

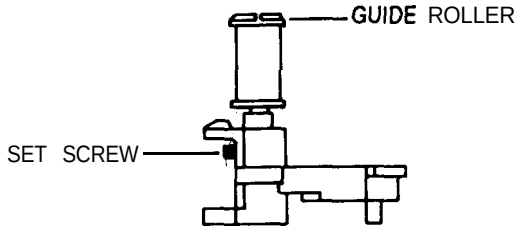


Fig. 12

7. Playback the alignment tape (Mono Scope ; SP).
8. Connect an oscilloscope CH-1 to TP302 and CH-2 to TP202 on the same PCB for triggering.
9. Turn the guide roller heads with a flat head (▭) screw driver to obtain flat video RF envelope as shown in Fig. 13.
10. After the adjustment is completed, tighten the set screws

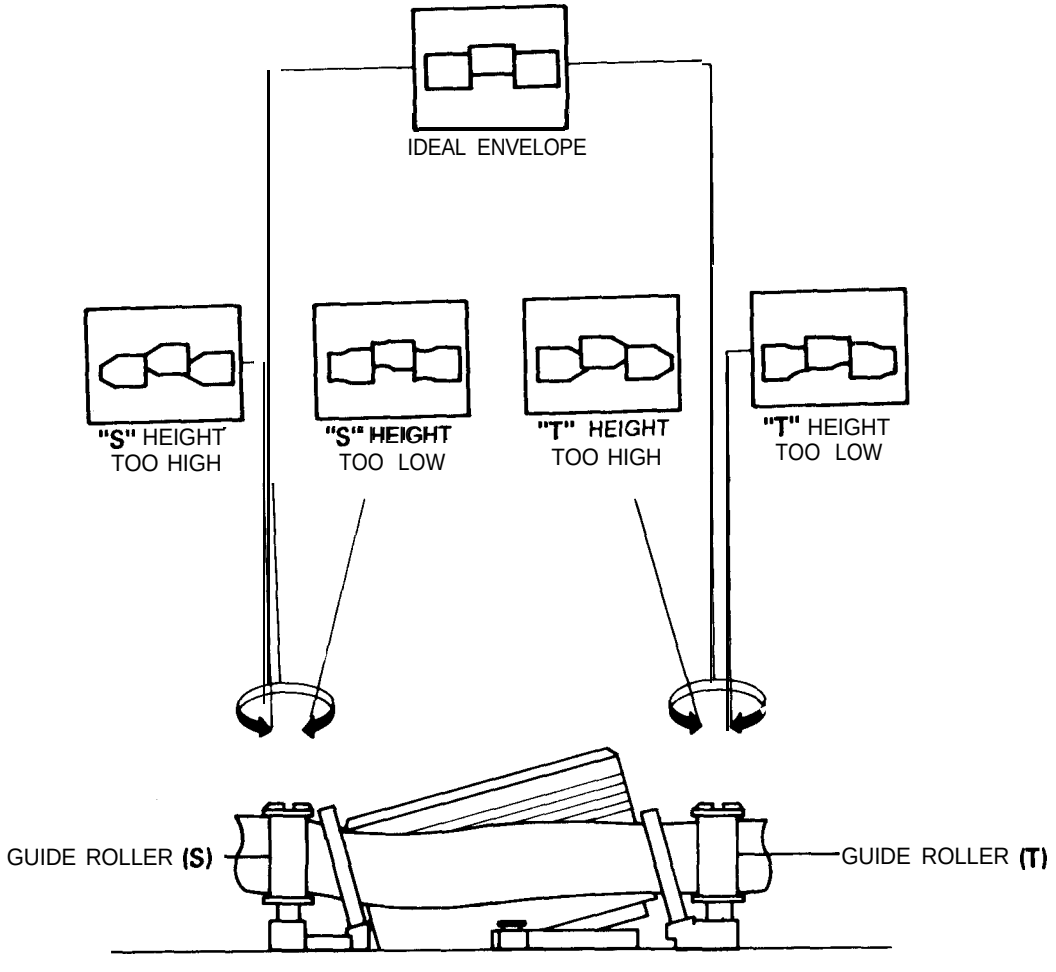


Fig. 13 S, T-Guide Roller Height Adjustments

3. Check for transitional operation from R.P.S to play

Check transition from R.P.S mode to play mode, using a prerecorded SP tape, make sure the entrance side of envelope comes to an appropriate steady state within 3 seconds as shown in Fig. 14.

If the envelope waveform does not reach specified peak-to-peak amplitude within 3 seconds, adjust as follows :

1. Make sure there is no gap between the supply roller lower flange and the tape.If there is a gap, adjust the supply guide roller again.
2. Change operation mode from the R.P.S to the play mode again and make sure entrance side of envelope rises within 3 seconds.

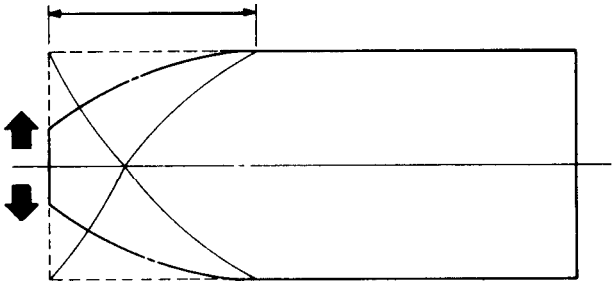
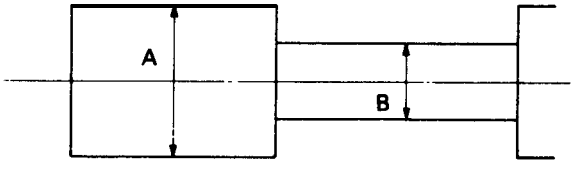


Fig. 14 Video envelope rising when operation mode is switched from R.P.S to play mode.

4. Envelope check

1. Make recordings on T-l 20 and T-l 60 tapes, and make sure the playback output envelope meets the specification as shown in Fig. 15.
2. Playback a self recorded tape (recording made on this unit), (with a T-l 20) the video envelope should meet the specification as shown in Fig. 15. In SLP mode, (A) should be same as (B). If the head gap is wide, the upper cylinder should be checked.



$B/A \geq 0.55$

$B/ \geq 150mV$

Fig. 15 Envelope Output and-output Level Difference

5 Tape wrinkle check

1. Run T-l 60 tape in playback, FPS, RPS and the pause mode and observe tape wrinkle at each guide.
2. If excessive tape wrinkle i's observed in the mode shown below, perform the associated adjustment shown below.

a. Playback mode

-Tape wrinkle at the S,T-guide roller section : Linearity adjustment.

- Tape wrinkle at tape guide flange : A/C head assembly coarse adjustment.

3-3. REEL TORQUE

3-3-I. Reel Torque

1. The rotation of the capstan motor operates the clutch ass'y through the capstan motor belt.
2. Brake operation and shift operation in FF/REW are done by a slide lever.
3. Transmission of accurate driving force is done by gears. (clutch ass'y)

MODE	TORQUE g/cm	GAUGE
PB/REC	100±30	Cassette Torquemeter
RPS	170±30	Cassette Torquemeter
FF/REW	Min 300g/cm	Torque Gauge

NOTE If the spec is out of above chart, replace the clutch ass'y and then recheck.

3-3-2. **Location of Tension Pole and Back Tension Adjustment**

1. Remove the housing ass'y and set the deck to play mode.
2. Adjust the tension cam to 2.5~3.5mm from the center of the supply roller.
3. The back tension meter should be used for checking the back tension.

Back tension, should be 41 - 51 g.cm.
If it is not, adjust the tension cam.

Counterclockwise : Torque UP
Clockwise : Torque DOWN

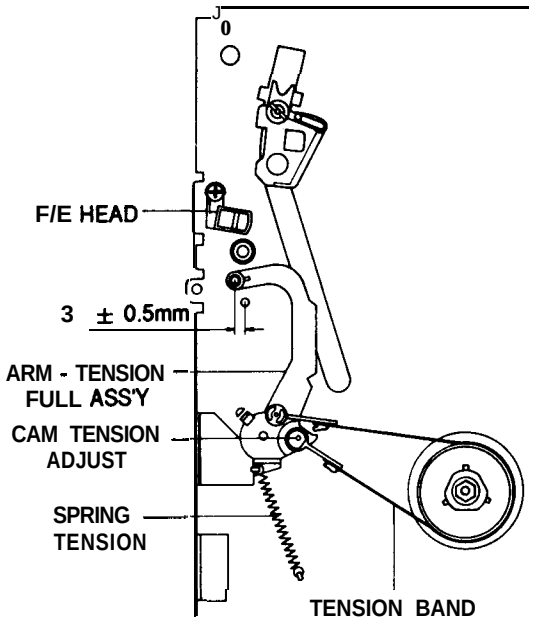


Fig. 16 Tension Pole and Back Tension Adjustment

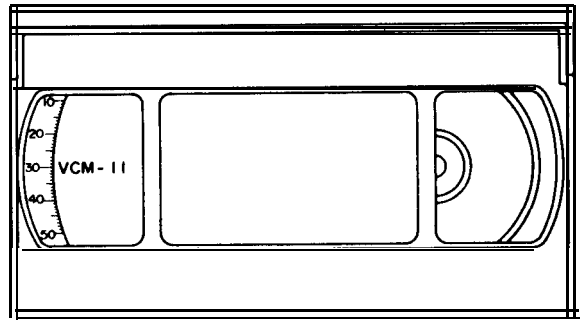


Fig. 17 Back Tension Tape Torque Cassette

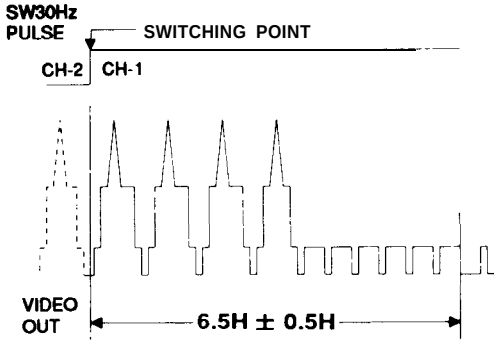
4-2. SERVO/VIDEO SECTION ADJUSTMENT

Step	Adjustment Item
1.	Mode and input signal/ Alignment tape
2.	Test point and ADJ. part
3.	Result & Remarks

ADJ. part
Test point

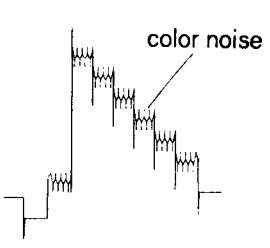
1. Head Switching Point

1) "PB", Alignment tape color bars.
2) TP202 (H'D S/W), TP802(Video out) & VR201.
3) * Connect an oscilloscope's CH-1 to TP202 for triggering and CH-2 to TP802.
* Adjust VR201 so that the head switching point is positioned 6.5 + 0.5H from the V-SYNC left edge as shown.



2. CCD COMB

1) "E-E" (Stop Mode), 2Vp-p color bar signal. (**V. IN** jack on the rear panel)
2) D308 & VR301.
3) * Push the "LINE IN" button on the remote control to receive LINE signal
* Connect an oscilloscope's CH-1 to D308 and set the VCR to REC mode.
* Adjust VR301 to make minimum color portion on the color bar signal.



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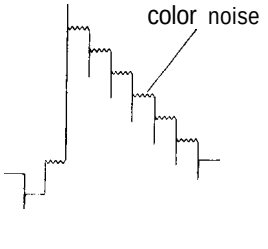

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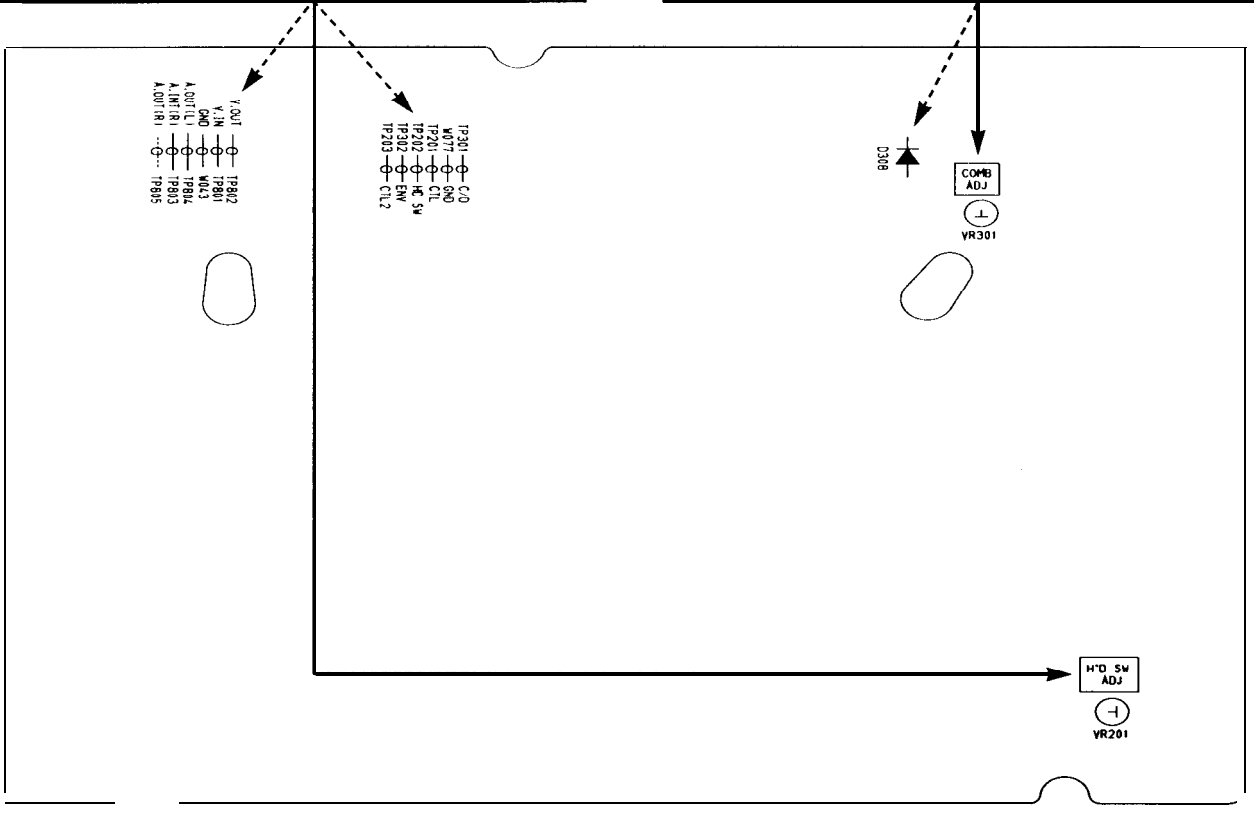
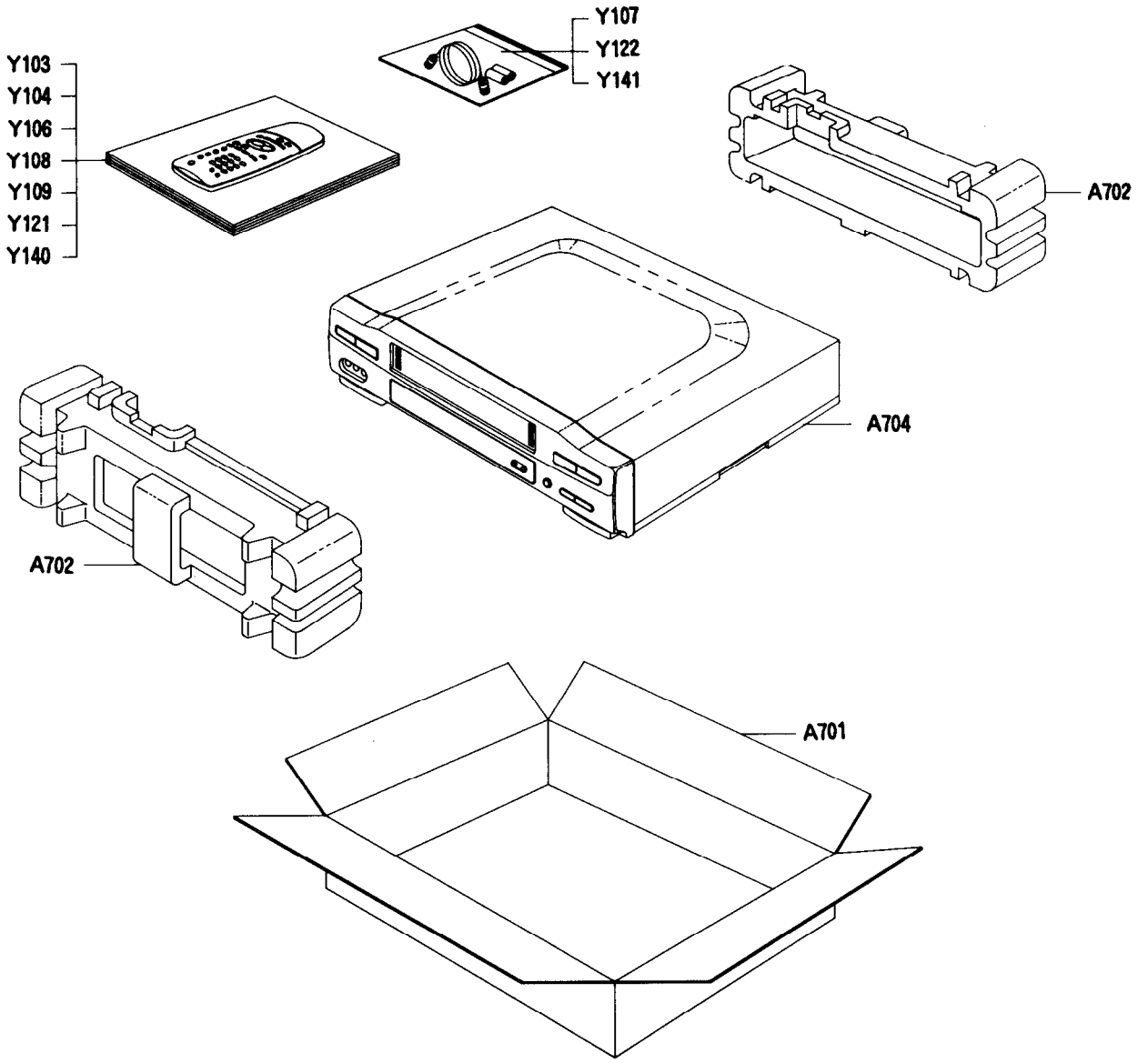
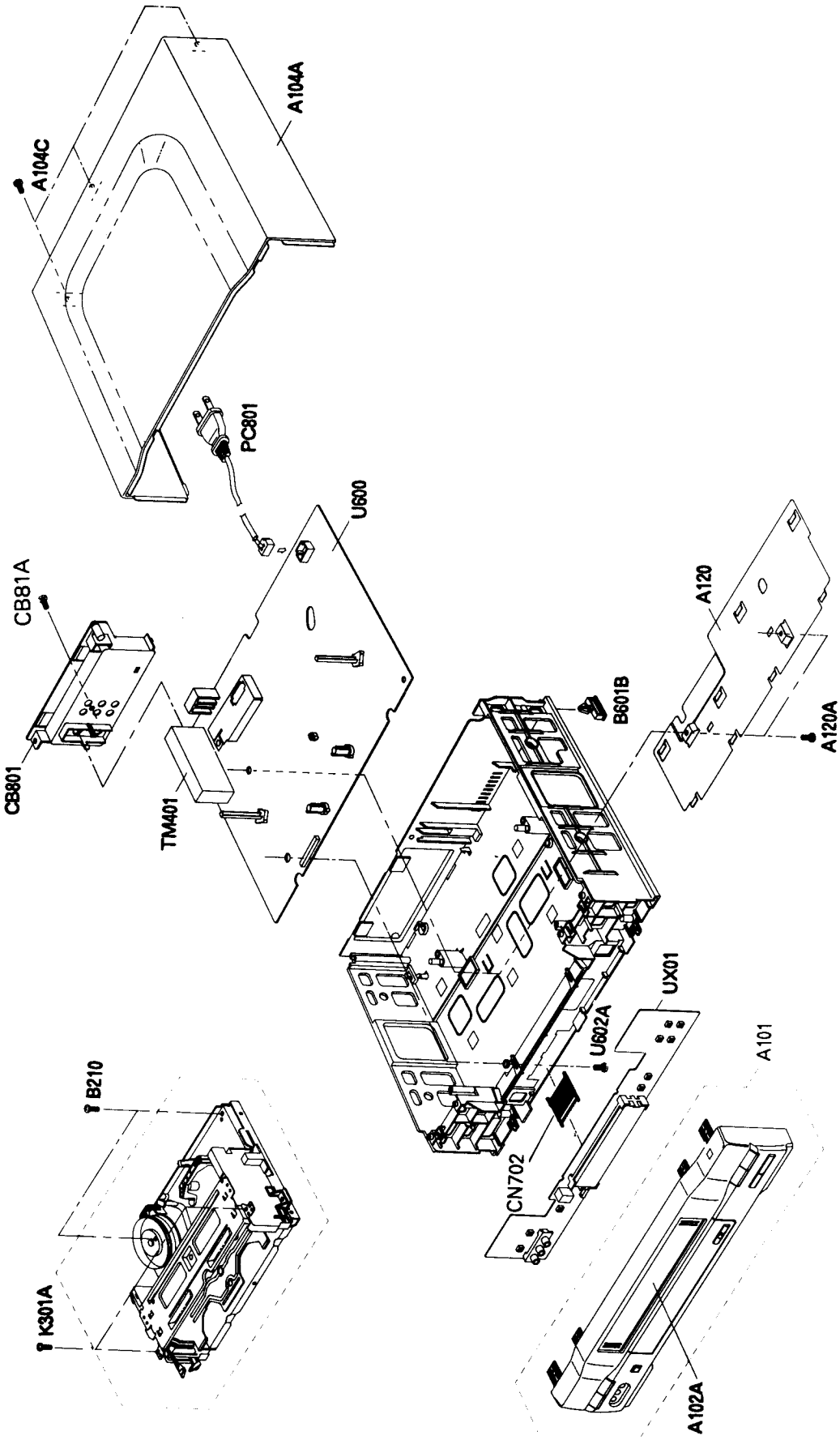


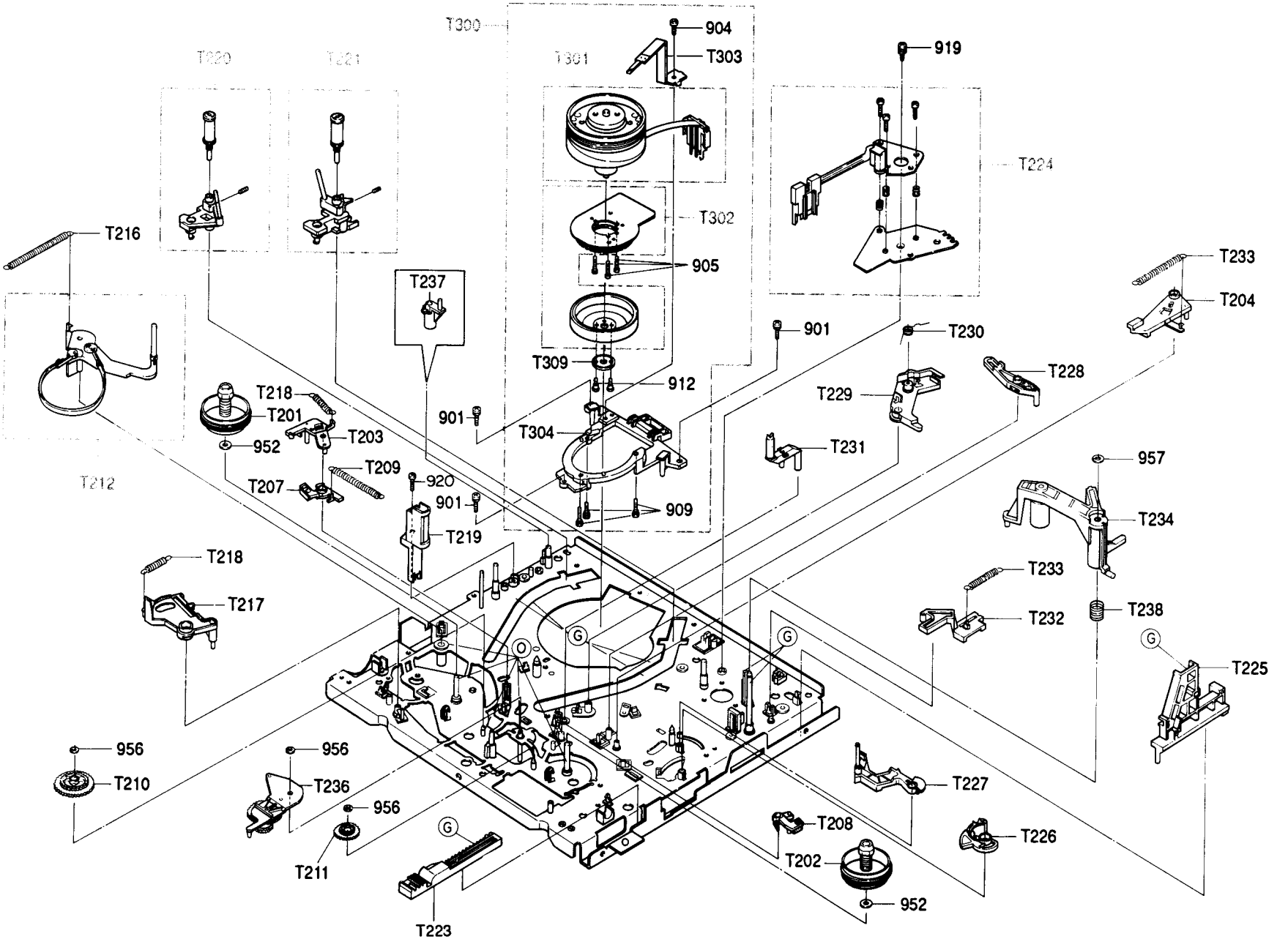
(Main PCB-Top Side)

7-1. PACKING ASSEMBLY

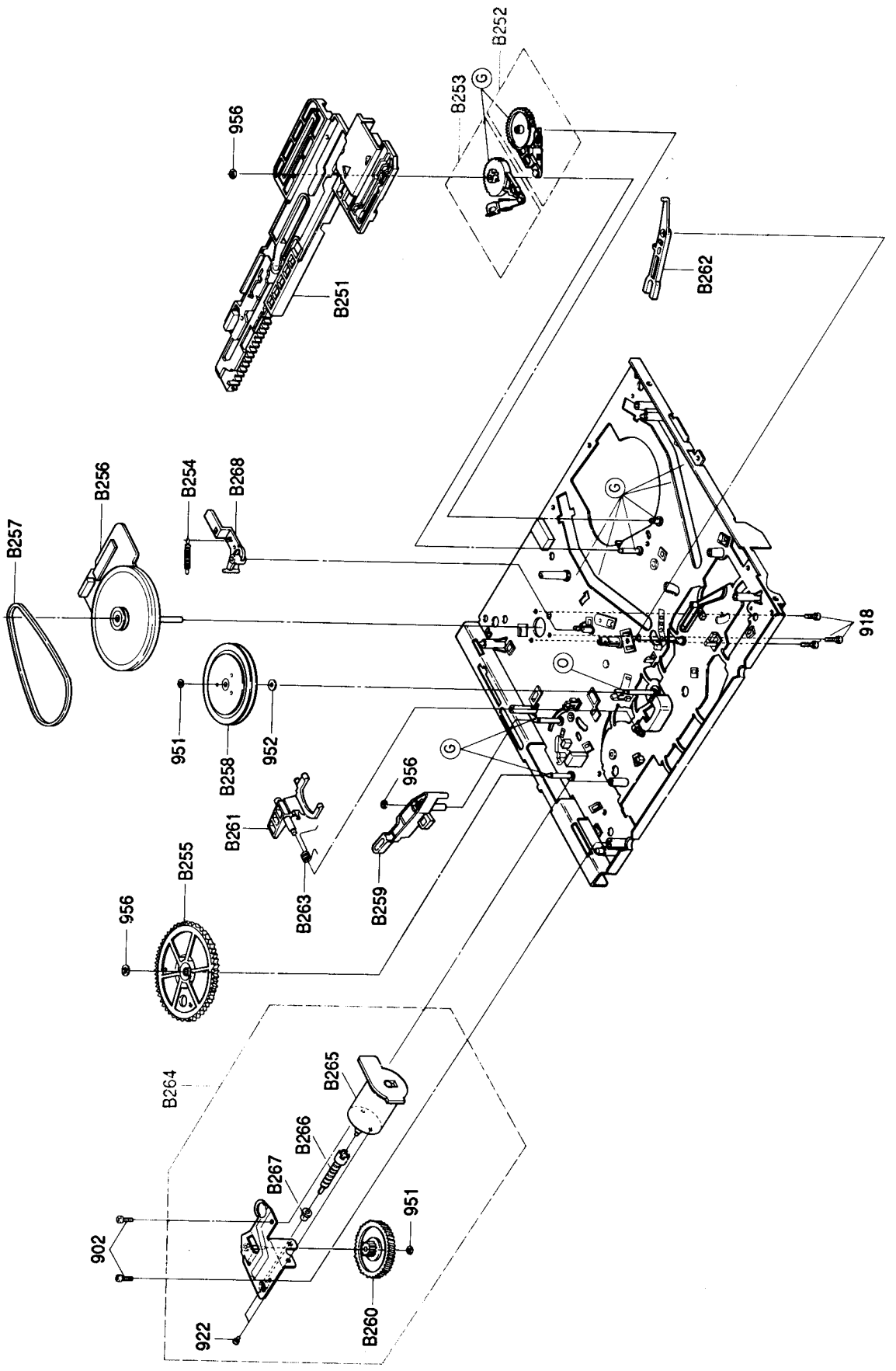


7-2. INSTRUMENT ASSEMBLY

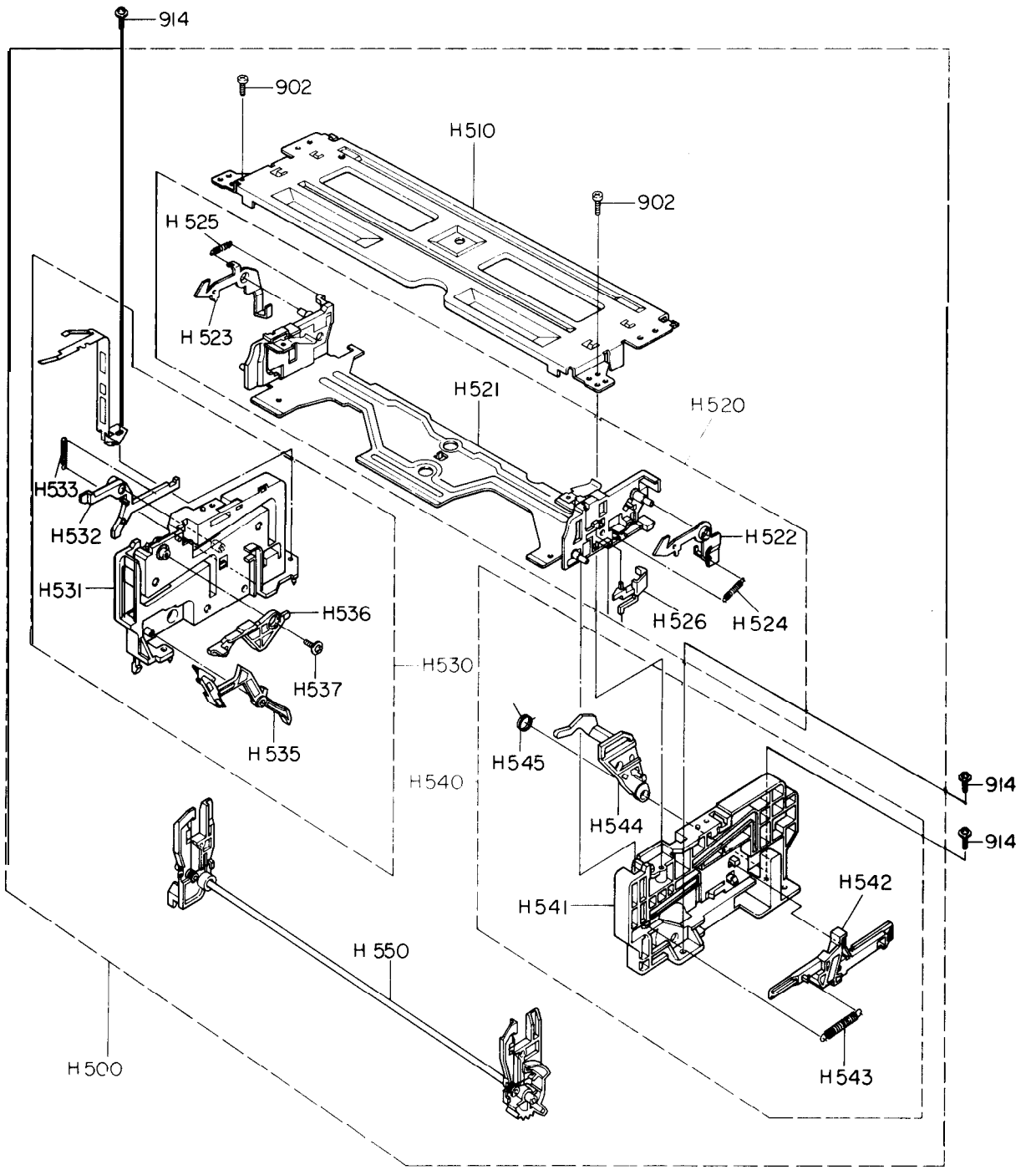



T300
T301
T220
T221
904
T303
919
T224
T216
T302
905
T237
T233
T204
901
T230
T309
912
T228
T218
T201
T203
952
T229
901
T304
T231
T209
920
T207
901
T219
909
957
T234
T218
T217
T233
T232
T238
T225
956
T210
956
T236
956
T211
T208
T202
T226
T227
952
T223

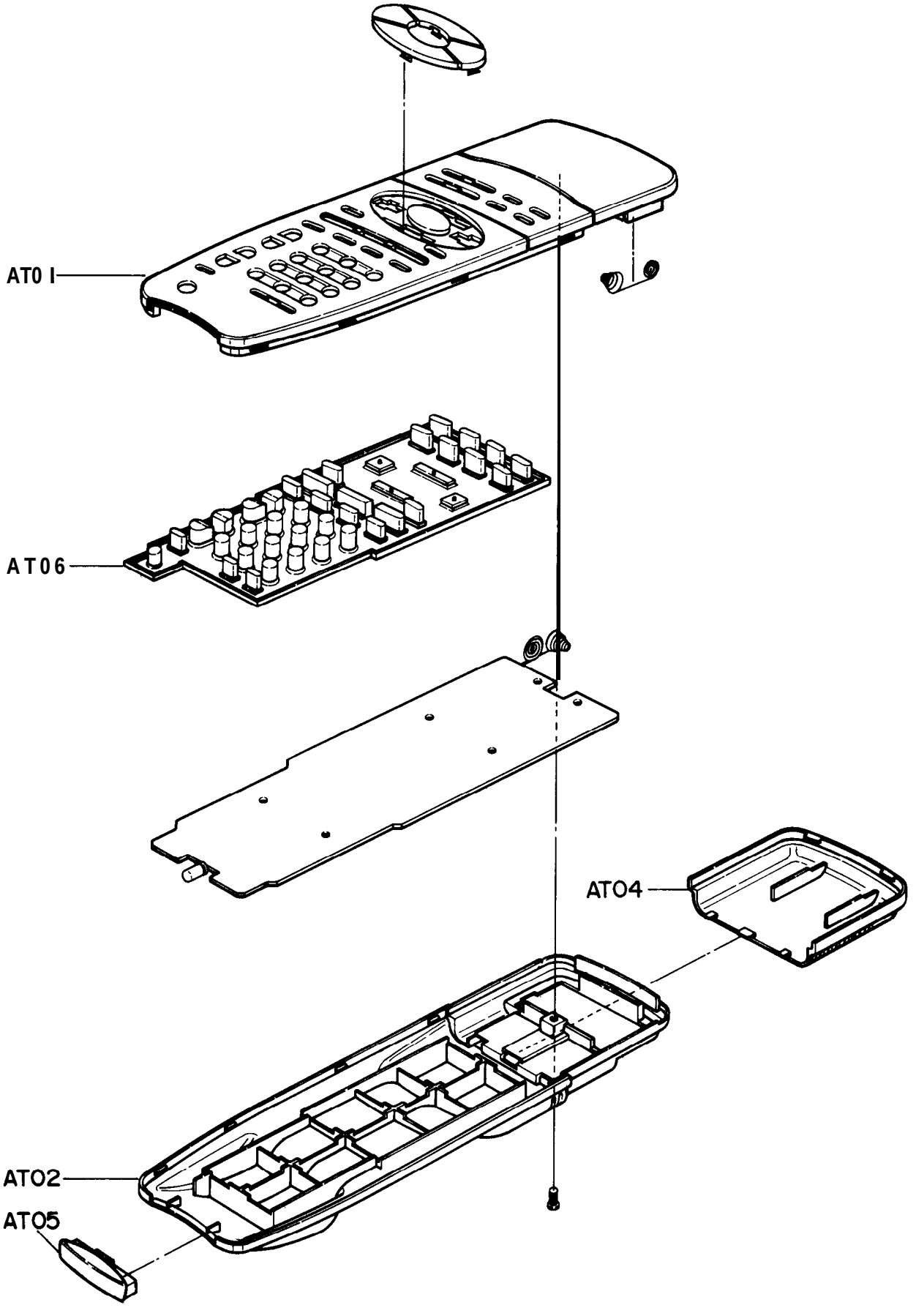
7-4. MECHANICAL ASSEMBLY(2)



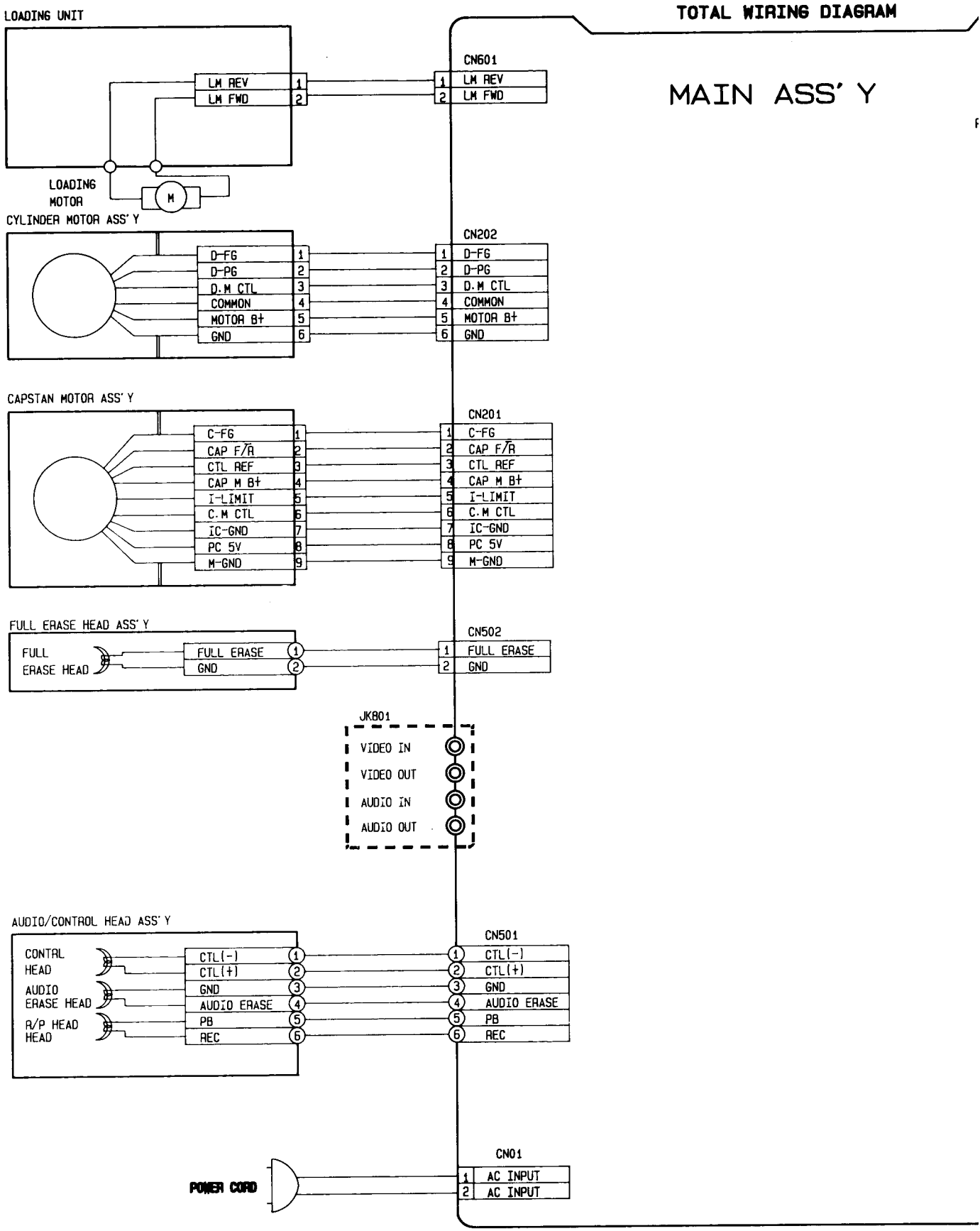
7-5. HOUSING ASSEMBLY



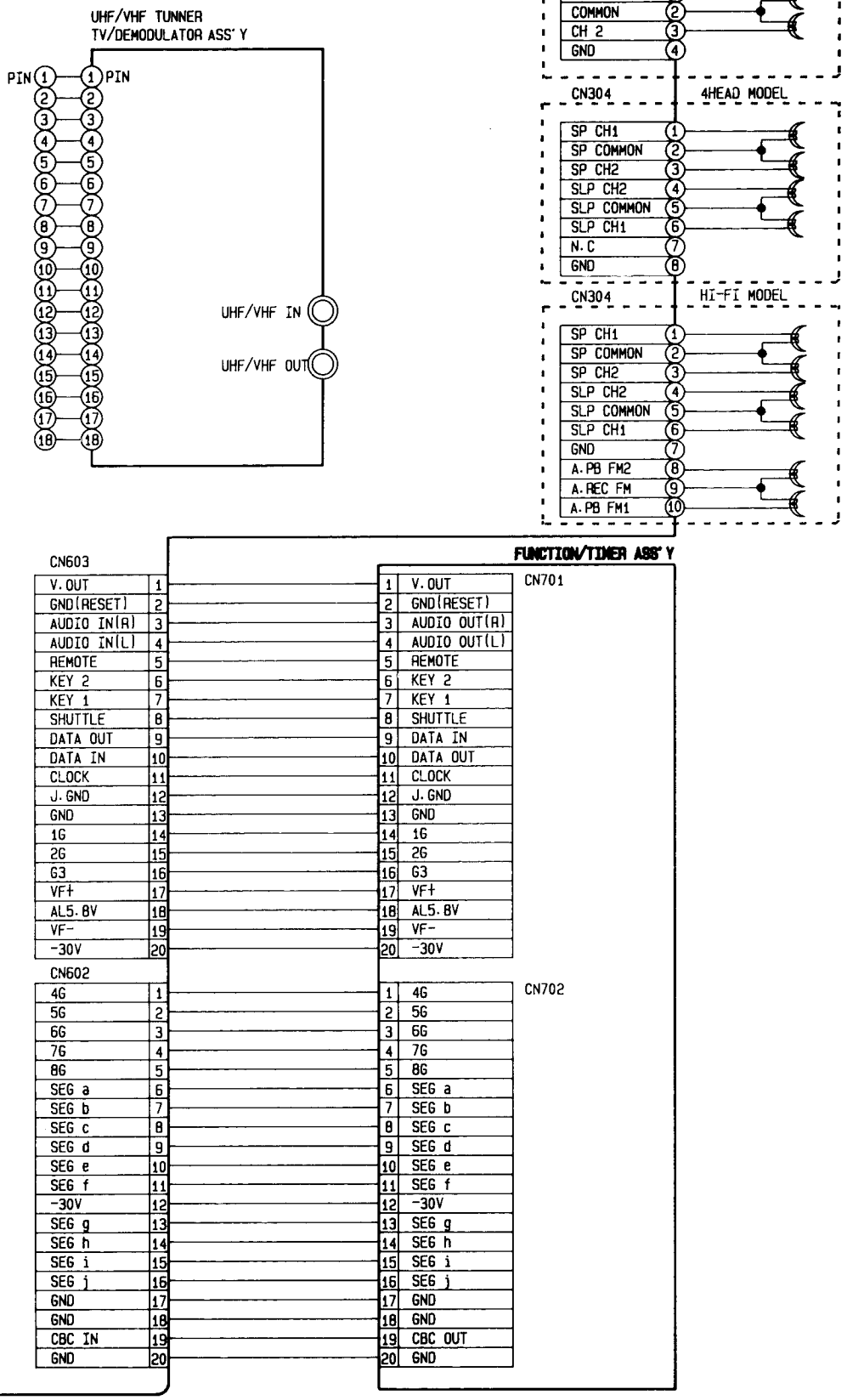
7-6. REMOTE CONTROL ASSEMBLY



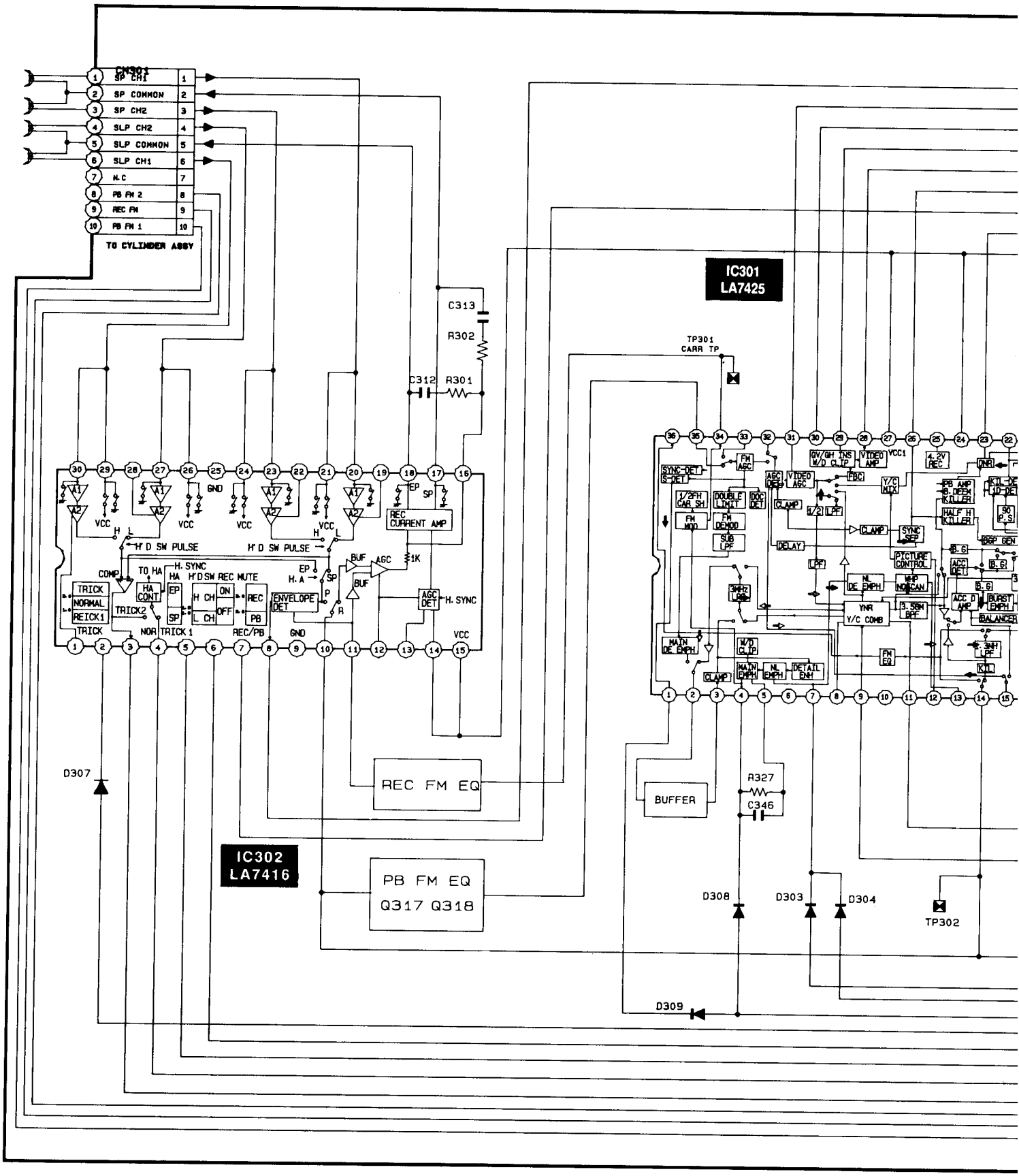
8-1. TOTAL WIRING DIAGRAMS

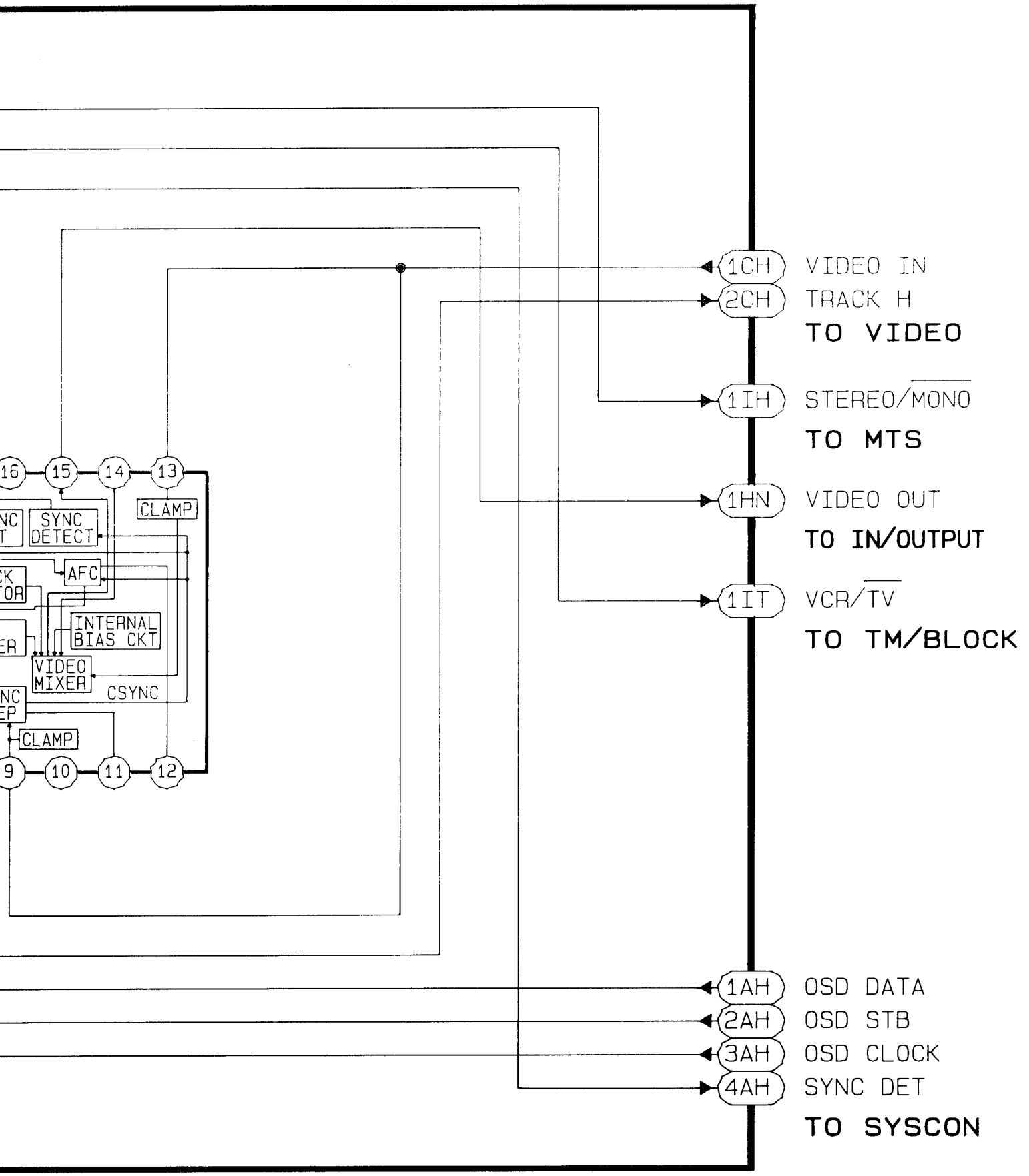


Y

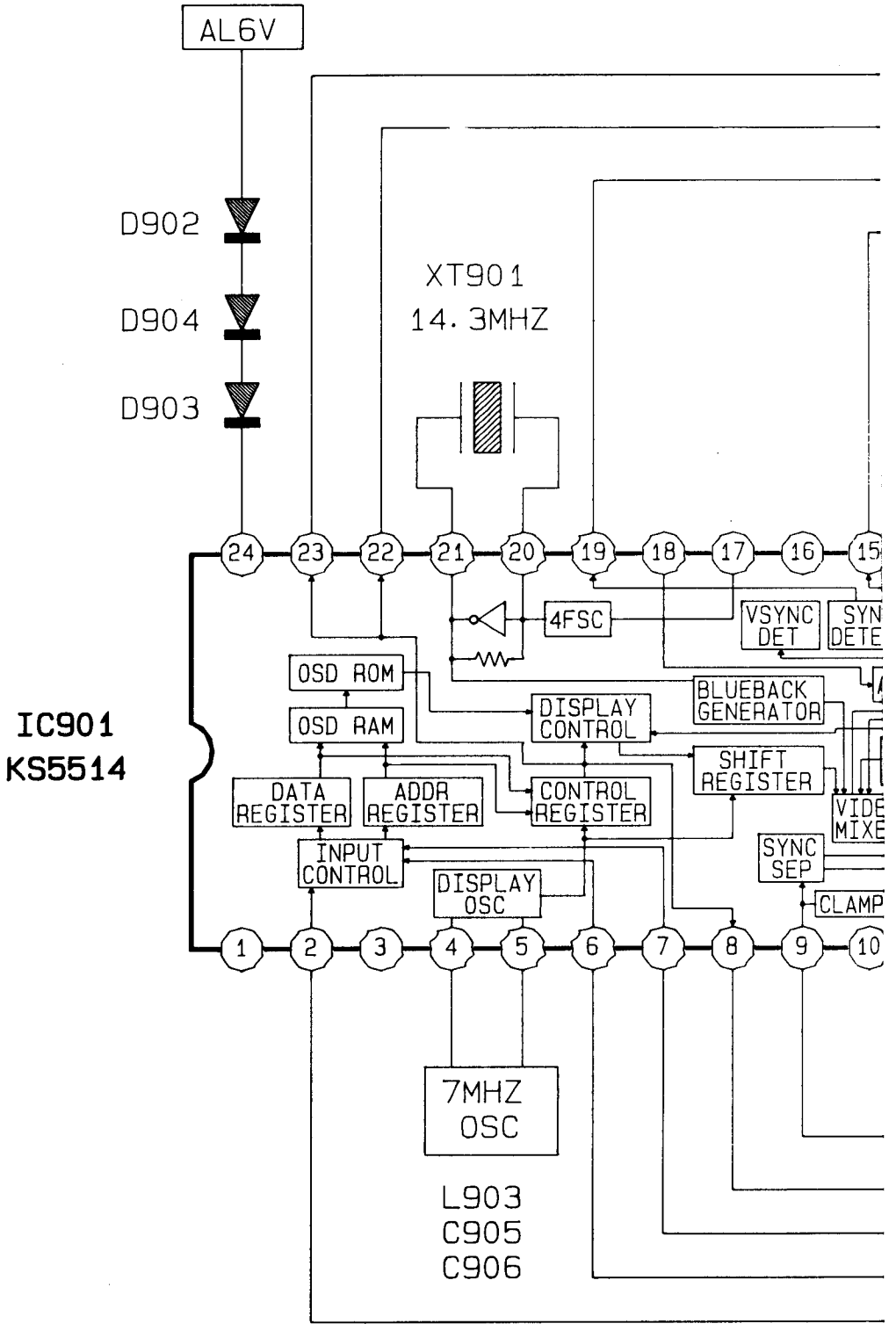

UHF/VHF TUNNER
TV/DEMODULATOR ASS'Y
PIN
PIN
UHF/VHF IN
UHF/VHF OUT
CN304
2HEAD MODEL
CH 1
COMMON
CH 2
GND
CN304
4HEAD MODEL
SP CH1
SP COMMON
SP CH2
SLP CH2
SLP COMMON
SLP CH1
N.C
GND
CN304
HI-FI MODEL
SP CH1
SP COMMON
SP CH2
SLP CH2
SLP COMMON
SLP CH1
GND
A.PB FM2
A.REC FM
A.PB FM1
FUNCTION/TIMER ASS'Y
CN603
V.OUT
GND(RESET)
AUDIO IN(R)
AUDIO IN(L)
REMOTE
KEY 2
KEY 1
SHUTTLE
DATA OUT
DATA IN
CLOCK
J.GND
GND
1G
2G
G3
VF+
AL5.8V
VF-
-30V
CN602
4G
5G
6G
7G
8G
SEG a
SEG b
SEG c
SEG d
SEG e
SEG f
-30V
SEG g
SEG h
SEG i
SEG j
GND
GND
CBC IN
GND
CN701
V.OUT
GND(RESET)
AUDIO OUT(R)
AUDIO OUT(L)
REMOTE
KEY 2
KEY 1
SHUTTLE
DATA IN
DATA OUT
CLOCK
J.GND
GND
1G
2G
G3
VF+
AL5.8V
VF-
-30V
CN702
4G
5G
6G
7G
8G
SEG a
SEG b
SEG c
SEG d
SEG e
SEG f
-30V
SEG g
SEG h
SEG i
SEG j
GND
GND
CBC OUT
GND

8-2. VIDEO


CN301
SP CH1
SP COMMON
SP CH2
SLP CH2
SLP COMMON
SLP CH1
N.C
PB FM 2
REC FM
PB FM 1
TO CYLINDER ASSY
IC301
LA7425
IC302
LA7416
C313
R302
C312
R301
TP301
CARR TP
REC CURRENT AMP
H'D SW PULSE
H. SYNC
REC MUTE
ENVELOPE DET
AGC DET
BUF
AGC
1K
VCC
GND
REC/PB
TRICK
NORMAL
REICK1
TRICK2
HA CONT
H CH
L CH
ON
OFF
REC
PB
REC FM EQ
PB FM EQ
Q317 Q318
BUFFER
R327
C346
D307
D308
D303
D304
D309
TP302
FM AGC
VIDEO AMP
4.2V REC
Y/C MIX
CLAMP
DELAY
LPF
FM MOD
FM DEMOD
SUB LPF
PICTURE CONTROL
NL DE EMPH
WHP NONCAN
YNR
Y/C COMB
3.58M BPF
FM EQ
BALANCER
BURST EMPH
MAIN DE EMPH
W/D CLIP
MAIN EMPH
NL EMPH
DETAIL EMH


16
15
14
13
CLAMP
SYNC DETECT
AFC
INTERNAL BIAS CKT
VIDEO MIXER
CSYNC
CLAMP
9
10
11
12
1CH
VIDEO IN
2CH
TRACK H
TO VIDEO
1IH
STEREO/MONO
TO MTS
1HN
VIDEO OUT
TO IN/OUTPUT
1IT
VCR/TV
TO TM/BLOCK
1AH
OSD DATA
2AH
OSD STB
3AH
OSD CLOCK
4AH
SYNC DET
TO SYSCON

3. OSD


AL6V
D902
D904
D903
XT901
14.3MHZ
IC901
KS5514
24
23
22
21
20
19
18
17
16
15
4FSC
VSYNC DET
OSD ROM
OSD RAM
DISPLAY CONTROL
BLUEBACK GENERATOR
SHIFT REGISTER
DATA REGISTER
ADDR REGISTER
CONTROL REGISTER
INPUT CONTROL
DISPLAY OSC
SYNC SEP
CLAMP
1
2
3
4
5
6
7
8
9
10
7MHZ OSC
L903
C905
C906

NOTE

- For Schematic Diagram
  - Resistors are in ohms, 1/8W unless otherwise noted.
  - Circled numbers refer to waveforms.

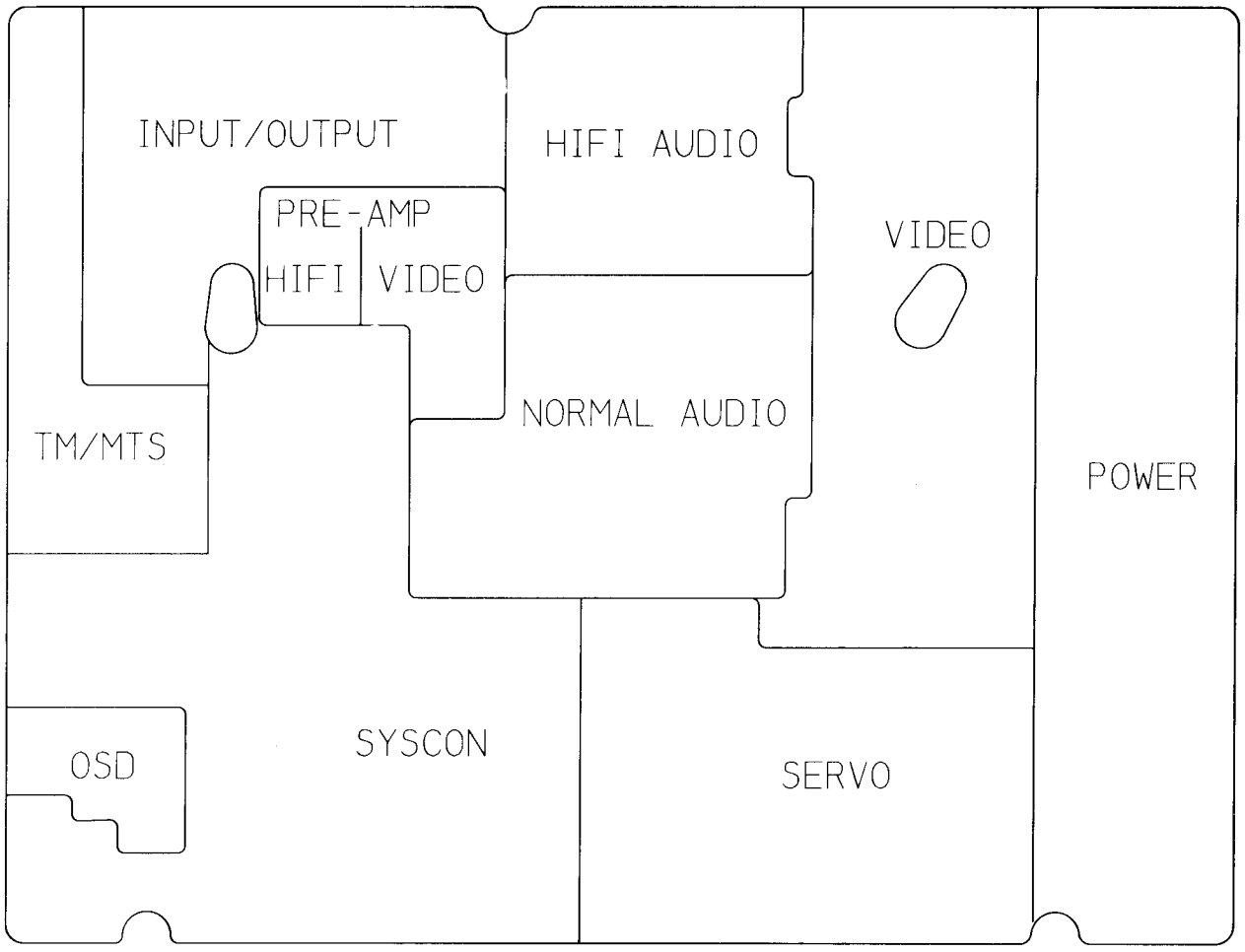
SPECIAL NOTE :
All integratedcircuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "electrostically sensitive (ES) devices" section of this service manual.

NOTE :
Do not use the part number shown on this drawing for ordering. The correct part number is shown in the parts list. And may be slightly different or amended since this drawing was prepared.

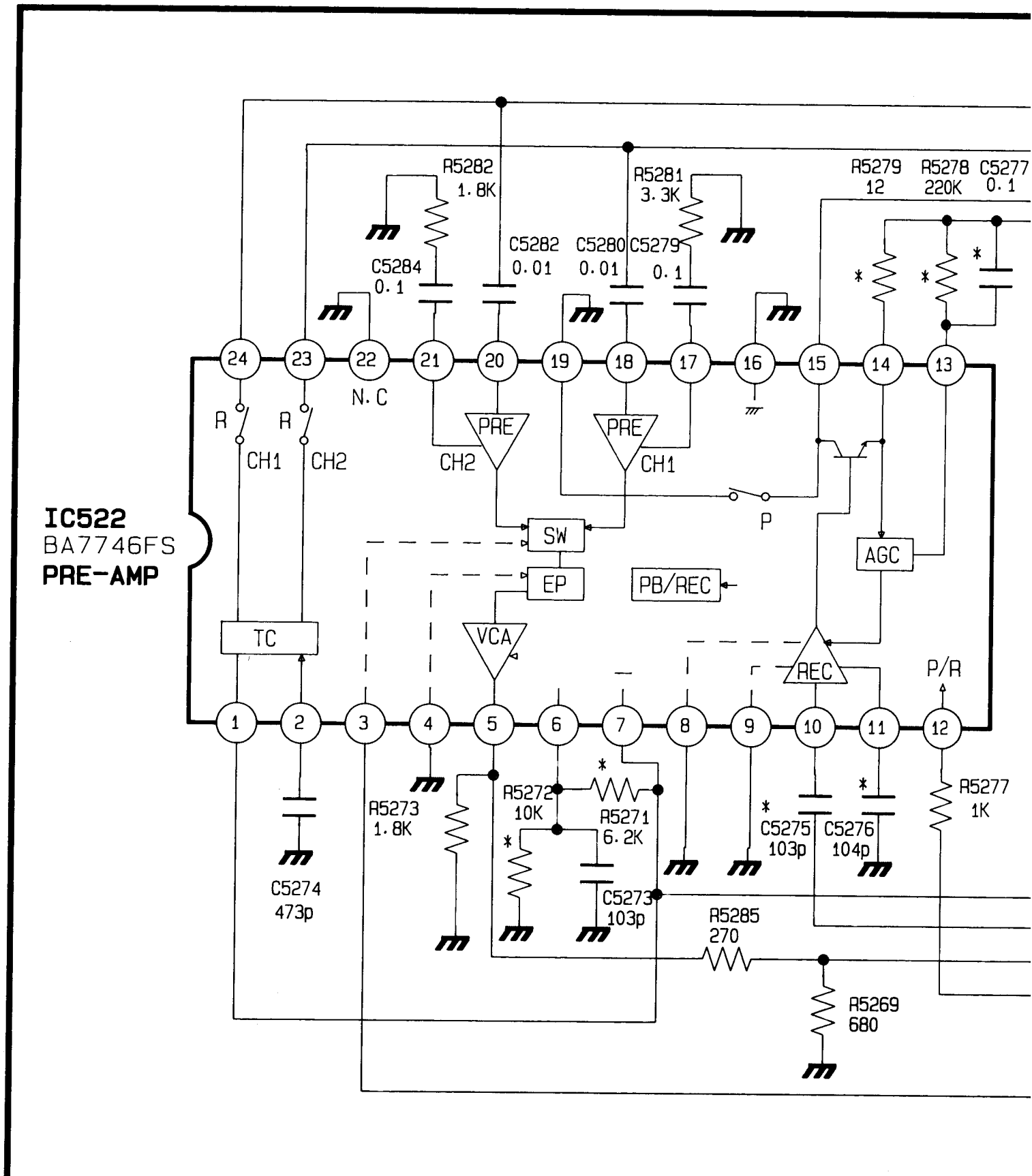
INFORTANT SAFETY NOTICES :
Components identified with the mark ⚠ have the special characteristics for safety when replacing any of these components. Use only the same type.

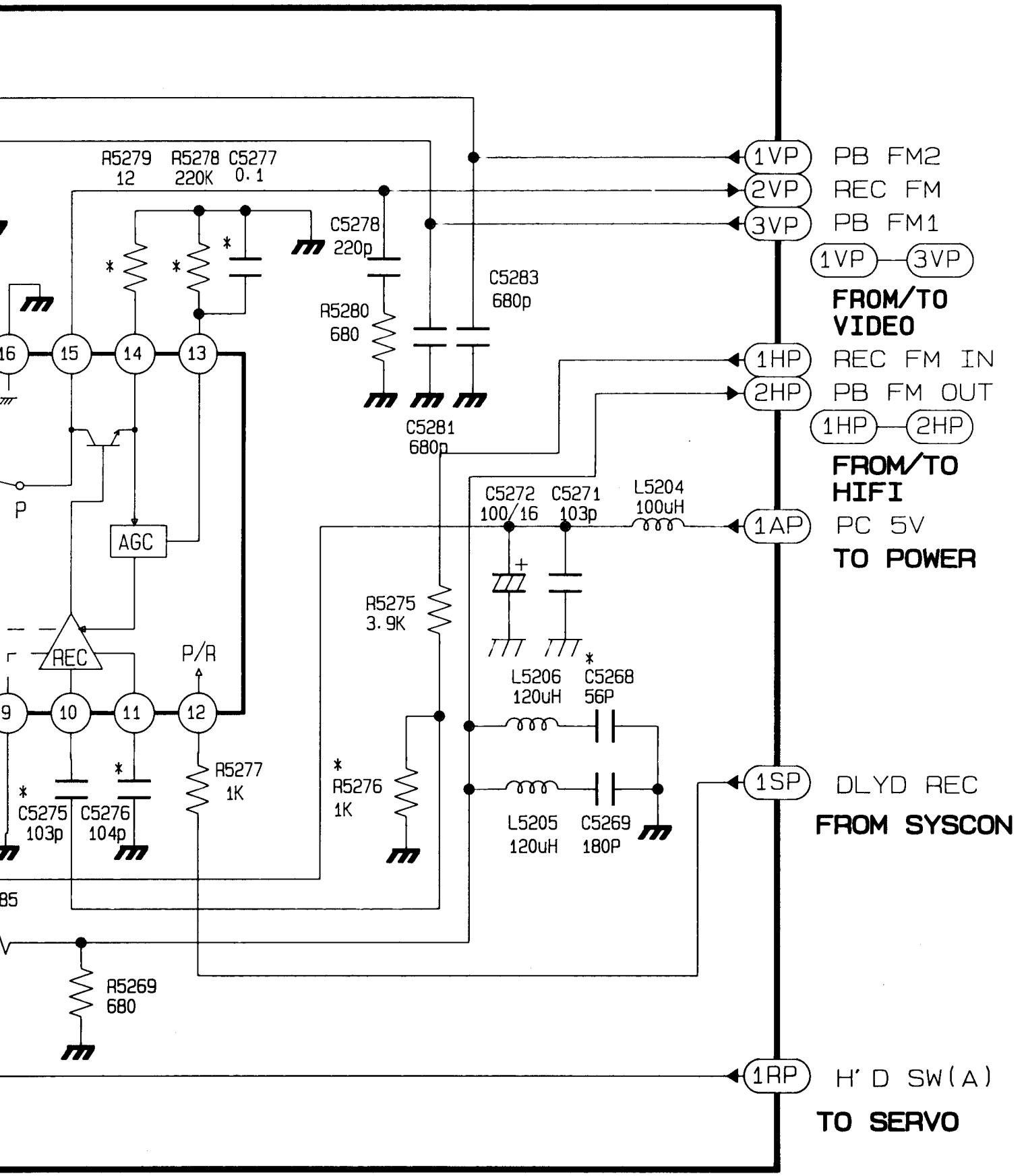
* BLOCK IDENTIFICATION OF MAIN PCB

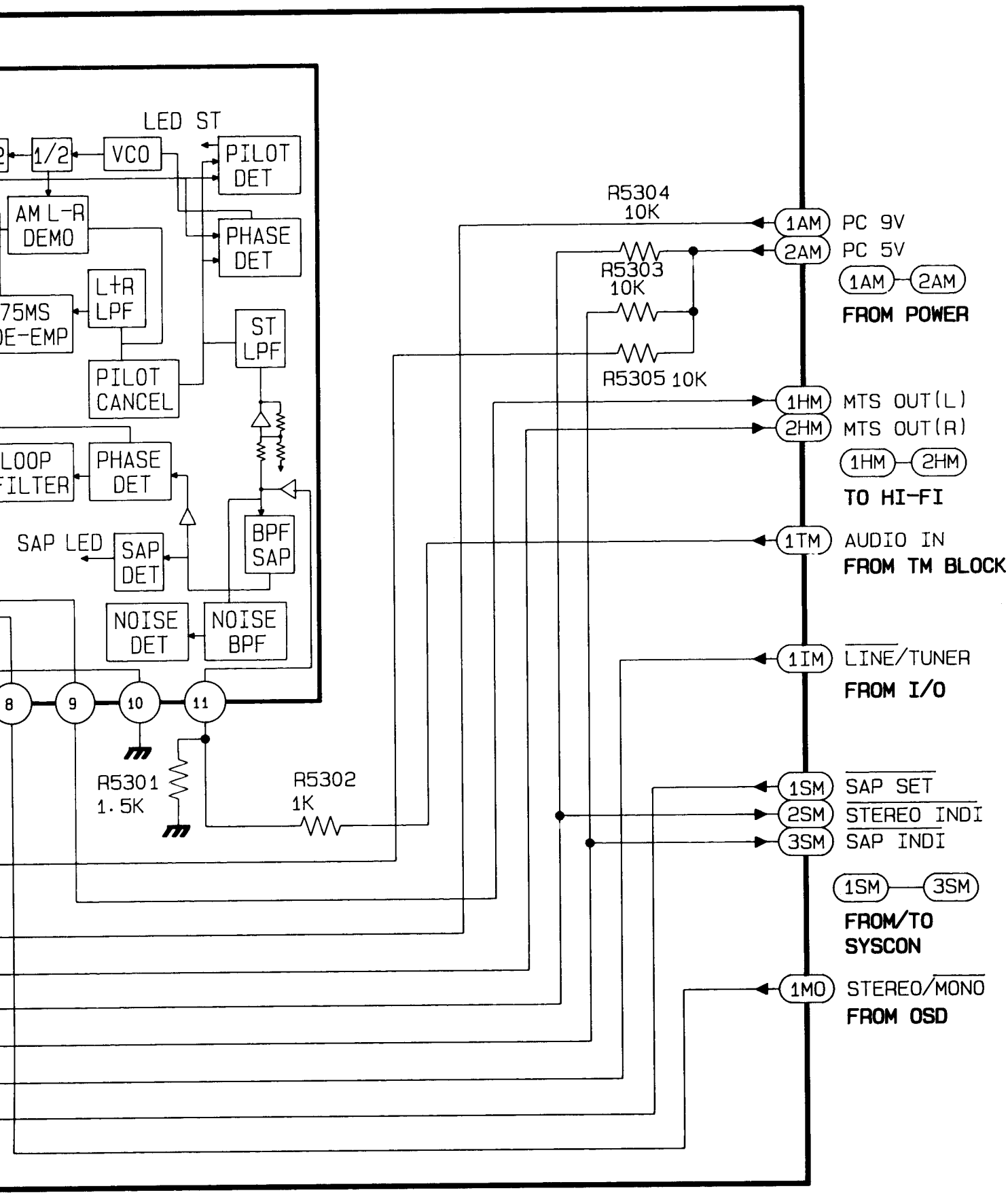
(TOP SIDE)



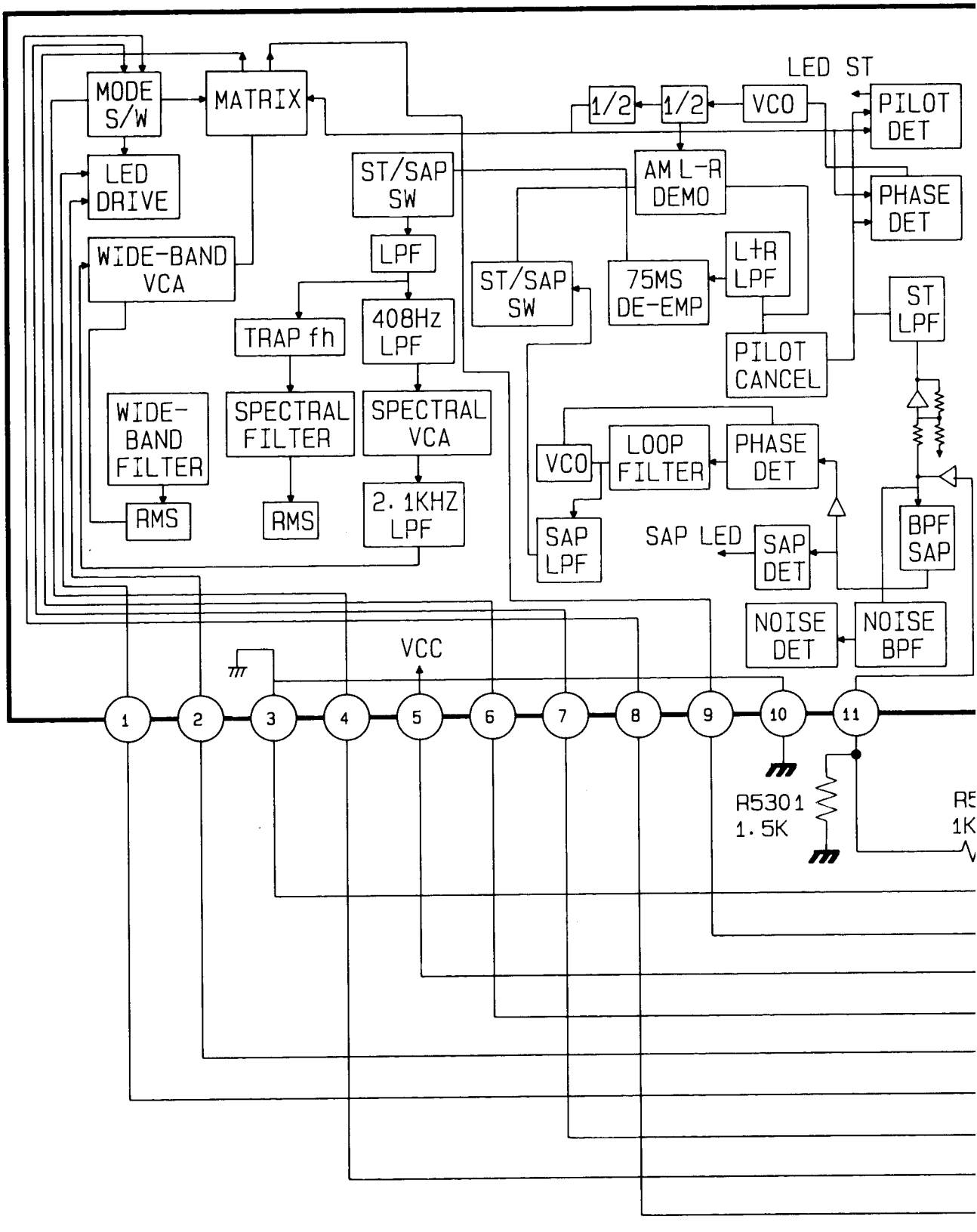
10-1. PRE/AMP(M672/M672C/M662/M662C/M65/M65C)



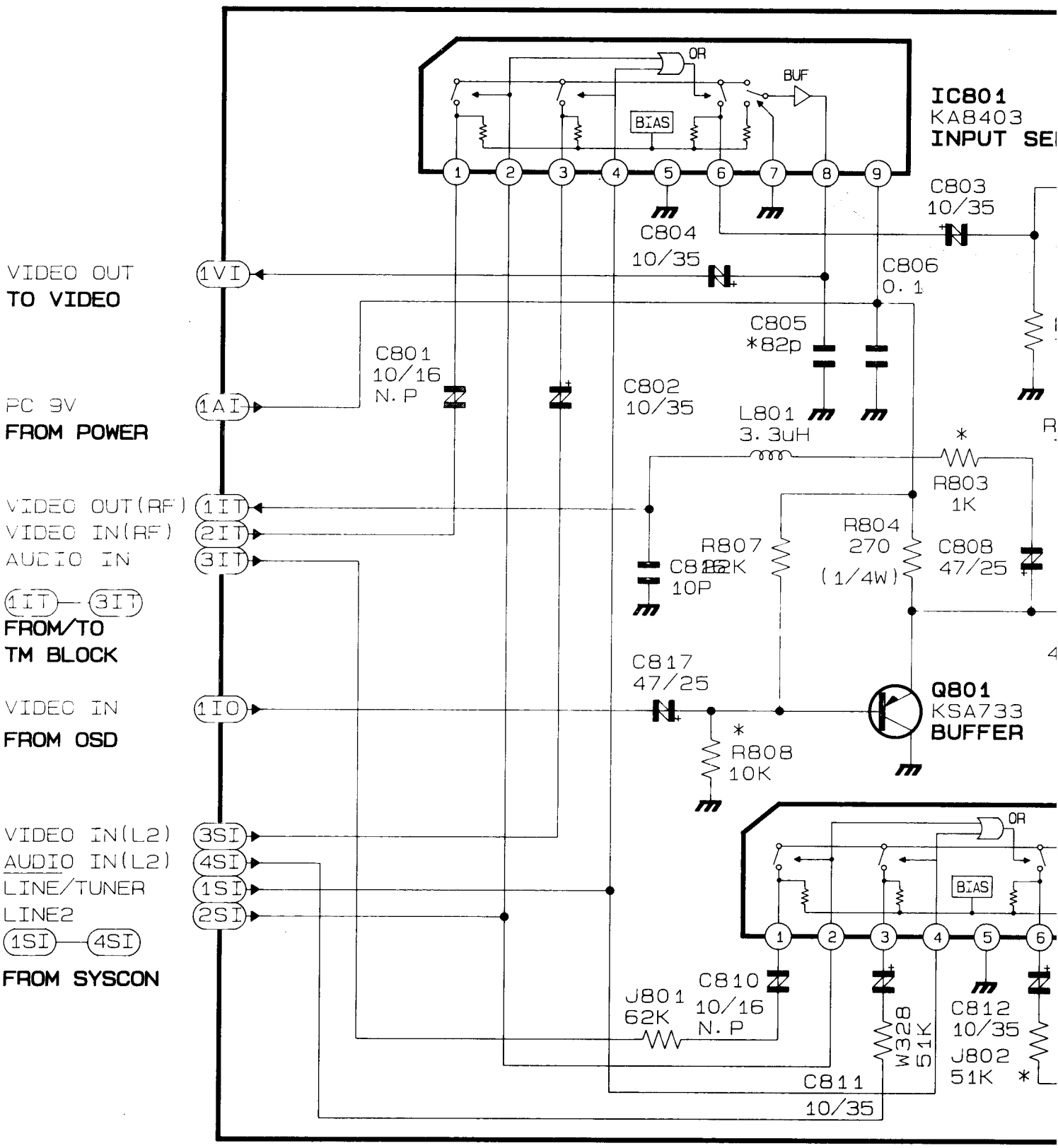

R5279
12
R5278
220K
C5277
0.1
C5278
220p
C5283
680p
R5280
680
C5281
680p
16
15
14
13
P
AGC
REC
P/R
9
10
11
12
C5275
103p
C5276
104p
R5277
1K
R5276
1K
R5275
3.9K
C5272
100/16
C5271
103p
L5204
100uH
L5206
120uH
C5268
56P
L5205
120uH
C5269
180P
R5269
680
85
1VP
PB FM2
2VP
REC FM
3VP
PB FM1
1VP
3VP
FROM/TO
VIDEO
1HP
REC FM IN
2HP
PB FM OUT
1HP
2HP
FROM/TO
HIFI
1AP
PC 5V
TO POWER
1SP
DLYD REC
FROM SYSCON
1RP
H' D SW(A)
TO SERVO

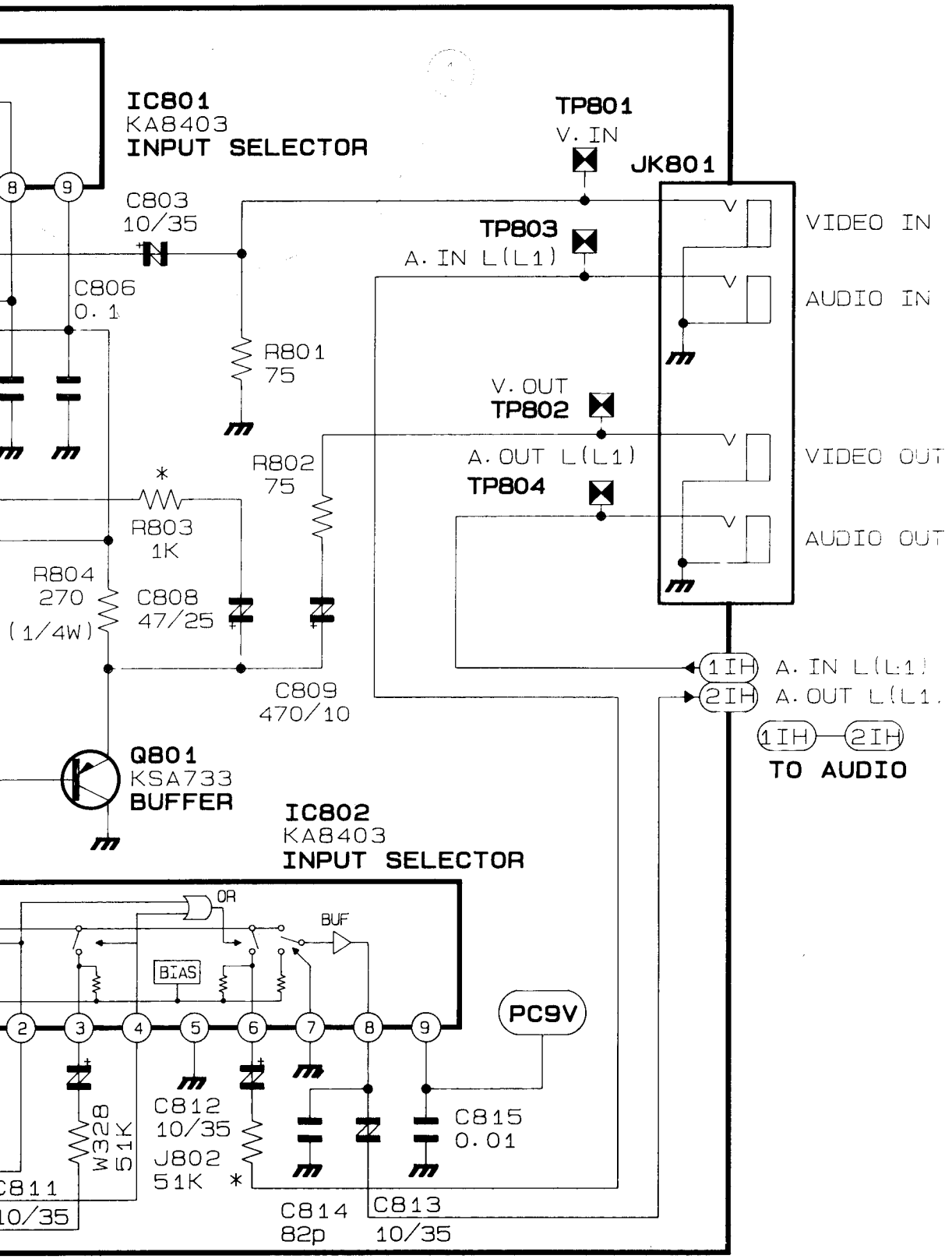

LED ST
1/2
VCO
PILOT DET
AM L-R DEMO
PHASE DET
L+R LPF
75MS DE-EMP
ST LPF
PILOT CANCEL
LOOP FILTER
PHASE DET
SAP LED
SAP DET
BPF SAP
NOISE DET
NOISE BPF
8
9
10
11
R5301 1.5K
R5302 1K
R5304 10K
R5303 10K
R5305 10K
1AM
2AM
PC 9V
PC 5V
1AM 2AM
FROM POWER
1HM
2HM
MTS OUT(L)
MTS OUT(R)
1HM 2HM
TO HI-FI
1TM
AUDIO IN
FROM TM BLOCK
1IM
LINE/TUNER
FROM I/O
1SM
2SM
3SM
SAP SET
STEREO INDI
SAP INDI
1SM 3SM
FROM/TO SYSCON
1MO
STEREO/MONO
FROM OSD

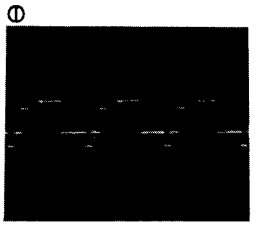
IC531
SVM-04
MTS



10-3. I/O (M472/M462/M45)



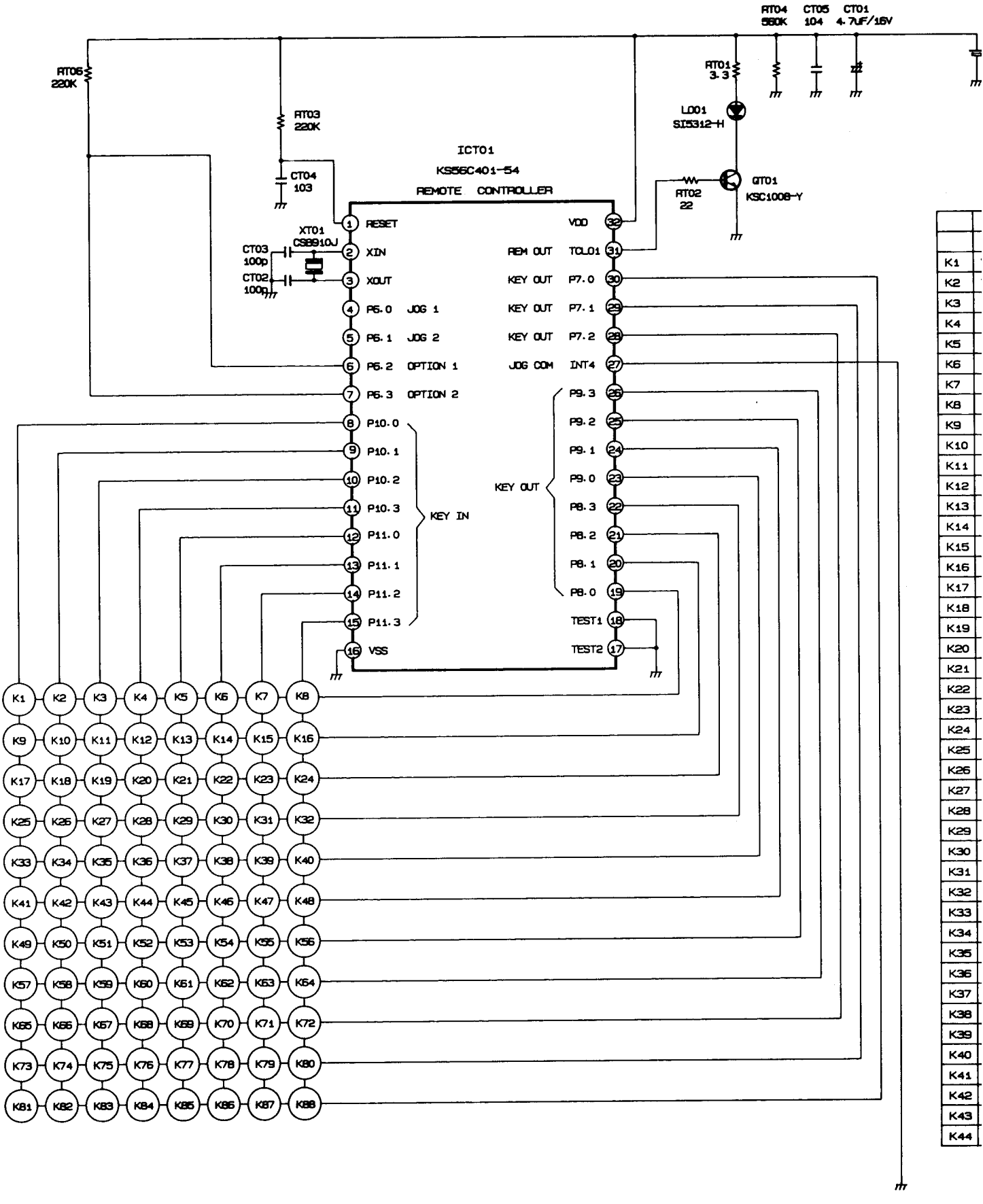


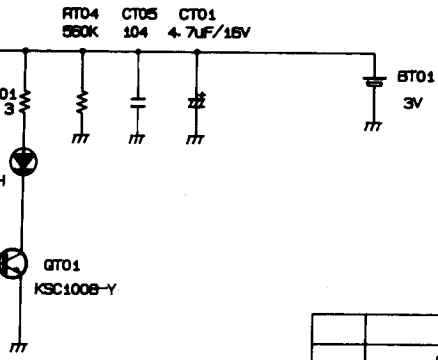


IC801-8
1.0Vp-p
REC

MODE / LOCA.NO	STOP	REC	PLAY
IC801			
1	6.1	6.1	6.1
2	4.6	0	0.9
3	6.1	6.1	6.1
4	0.8	0.8	4.5
5	0	0	0
6	6.1	6.1	6.1
7	0	0	0
8	5.3	5.3	5.3
9	8.9	8.9	8.9
Q801			
E	4.3	4.3	4.3
B	3.6	3.6	3.6
C	0	0	0

10-4. REMOTE CONTROL

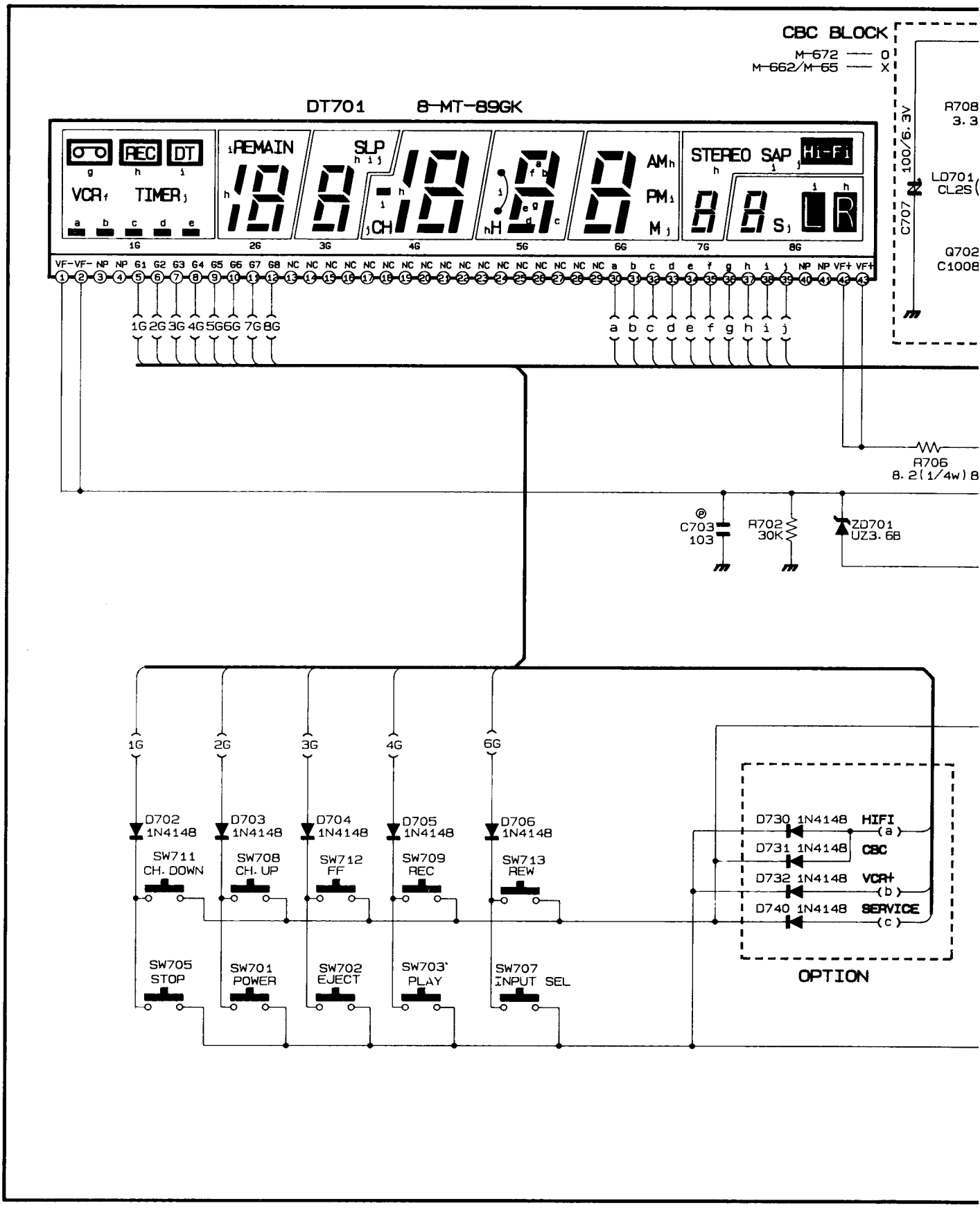


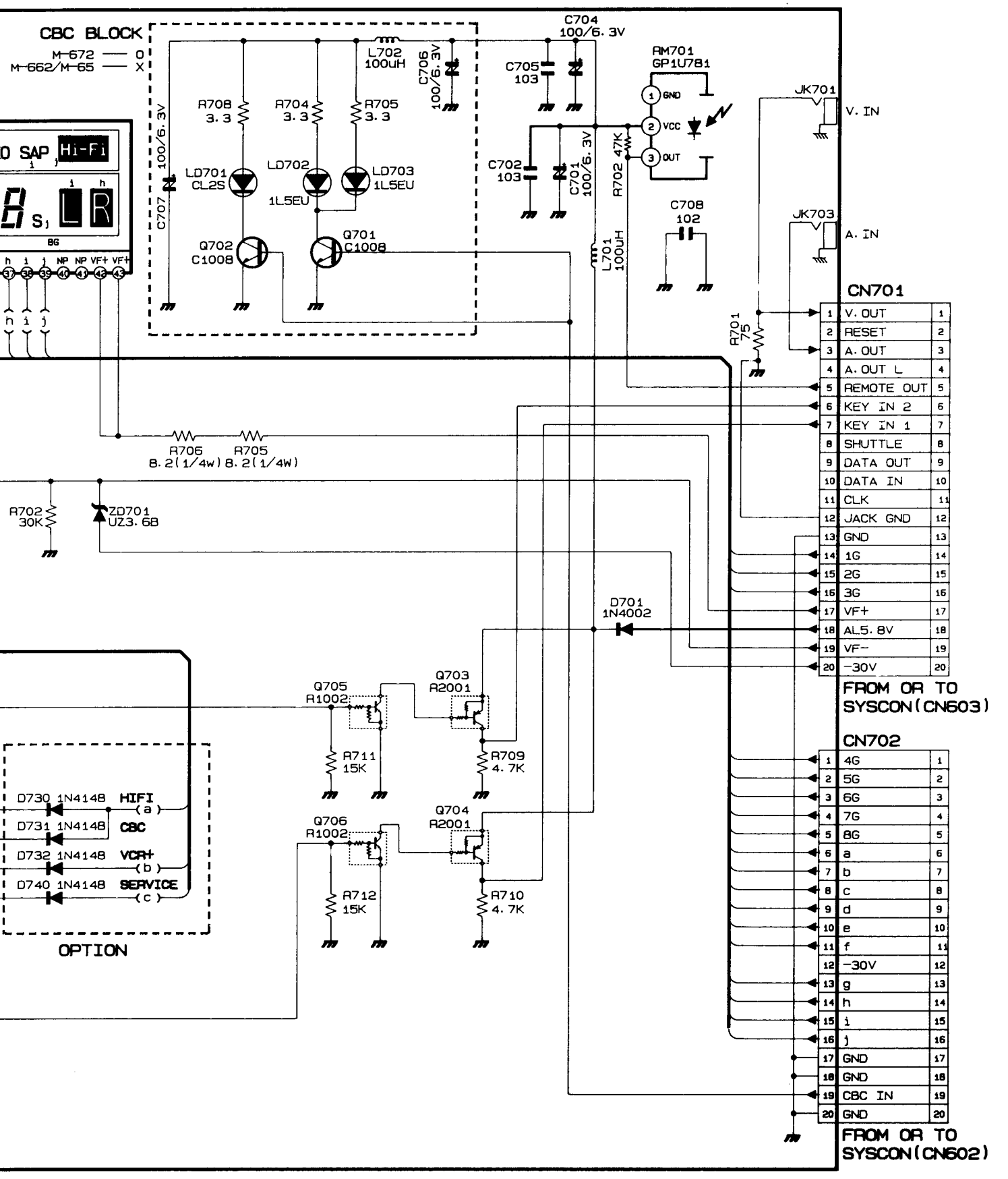


KEY MATRIX

	KEY NAME			KEY NAME	
	SEJ	TSB		SEJ	TSB
K1	VCR POWER		K45	MUTE	MUTE
K2	TV POWER		K46	VOLUME UP	VOLUME UP
K3	POWER(VCR/TV)	POWER(VCR/TV)	K47	VOLUME DOWN	VOLUME DOWN
K4	PLAY	PLAY	K48		OTR(OTR OFF)
K5	STOP	STOP	K49		
K6	FAST FORWARD	FAST FORWARD	K50		
K7	REWIND	REWIND	K51		
K8	VCR	VCR	K52		
K9	1	1	K53		
K10	2	2	K54		
K11	3	3	K55		
K12	4	4	K56		
K13	5	5	K57		
K14	6	6	K58		
K15	7	7	K59		
K16	TV	TV	K60		
K17	8	8	K61		
K18	9	9	K62		
K19	0	0	K63		
K20	100	100	K64	SHUTTLE 4	SHUTTLE 4
K21	MENU(PROGRAM)	MENU(PROGRAM)	K65	SHUTTLE(+)	
K22	INDEX	INDEX	K66	SHUTTLE(-)	
K23	TAPE SPEED	TAPE SPEED	K67	MEMORY	
K24	TV/VCR	TV/VCR	K68	ZERO RETURN	CBC POWER
K25	AUDIO OUT SELECT	AUDIO OUT SELECT	K69	PB X 2	CBC CH UP
K26	INPUT SELECT	INPUT SELECT	K70	TV/CATV	CBC CH DOWN
K27	CH UP	CH UP/TRK+	K71	CLOCK/COUNTER	REMAIN/COUNTER
K28	CH DOWN	CH DOWN/TRK-	K72	SHUTTLE 3	SHUTTLE 3
K29	Q-PROGRAM(VCR+)	Q-PROGRAM(VCR+)	K73		
K30	JOG(+)	JOG(+)	K74		
K31	JOG(-)		K75		
K32		ENTER	K76		
K33	SHIFT(+)	SHIFT(+)	K77		
K34	SHIFT(-)	SHIFT(-)	K78		
K35	TRACKING(+)		K79		
K36	TRACKING(-)		K80	SHUTTLE 2	SHUTTLE 2
K37	DISPLAY	DISPLAY	K81		
K38	SLOW(+)	SLOW(+)	K82		
K39	SLOW(-)	SLOW(-)	K83		
K40	CLEAR(RESET)	CLEAR(RESET)	K84		
K41	RECORD	RECORD	K85		
K42	PAUSE/STILL	PAUSE/STILL	K86		
K43	AUTO TRACKING	AUTO TRACKING	K87	TEST	TEST
K44	EJECT	EJECT	K88	SHUTTLE 1	SHUTTLE 1

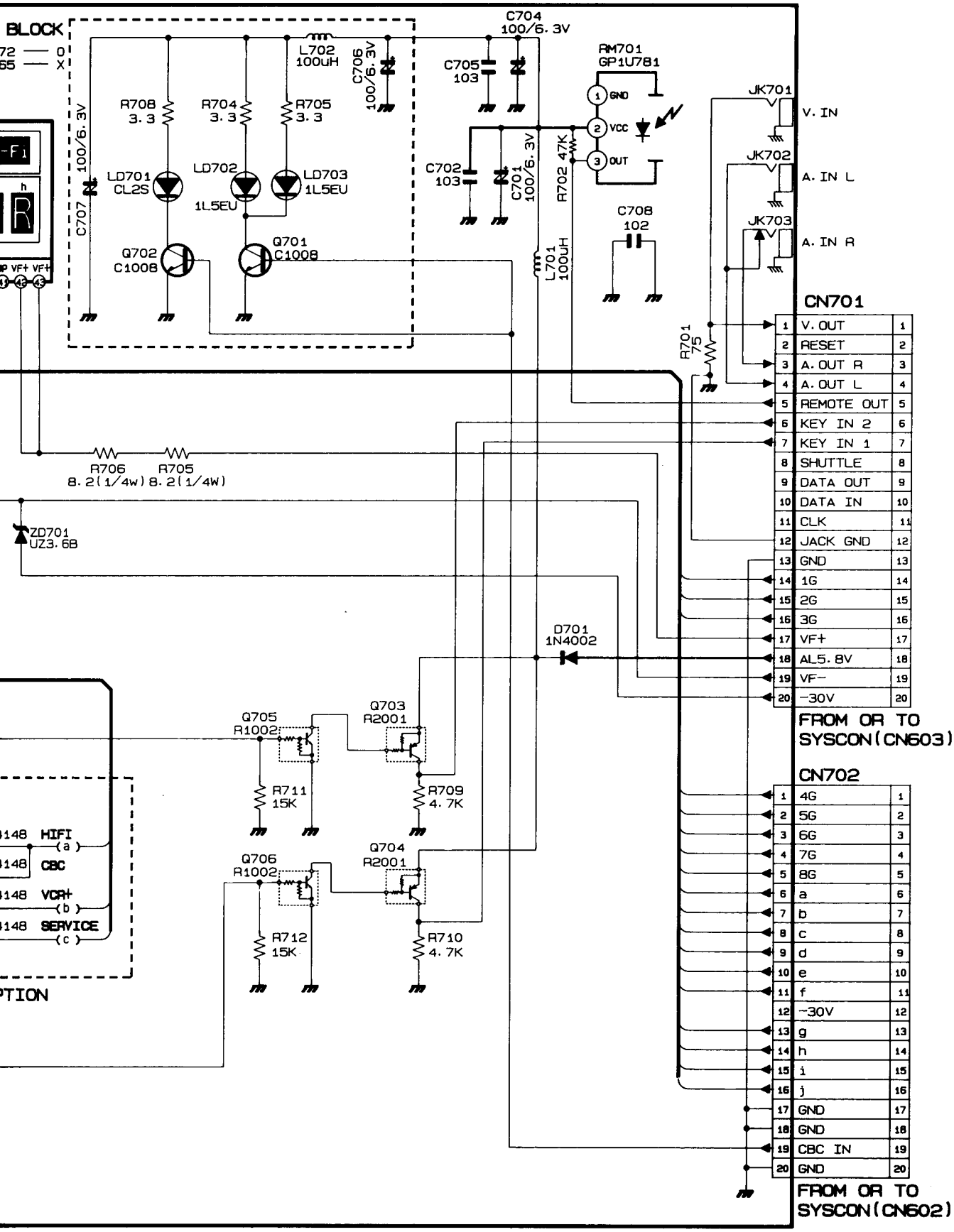
10-5. FUNCTION-TIMER (M472/M462/M45)



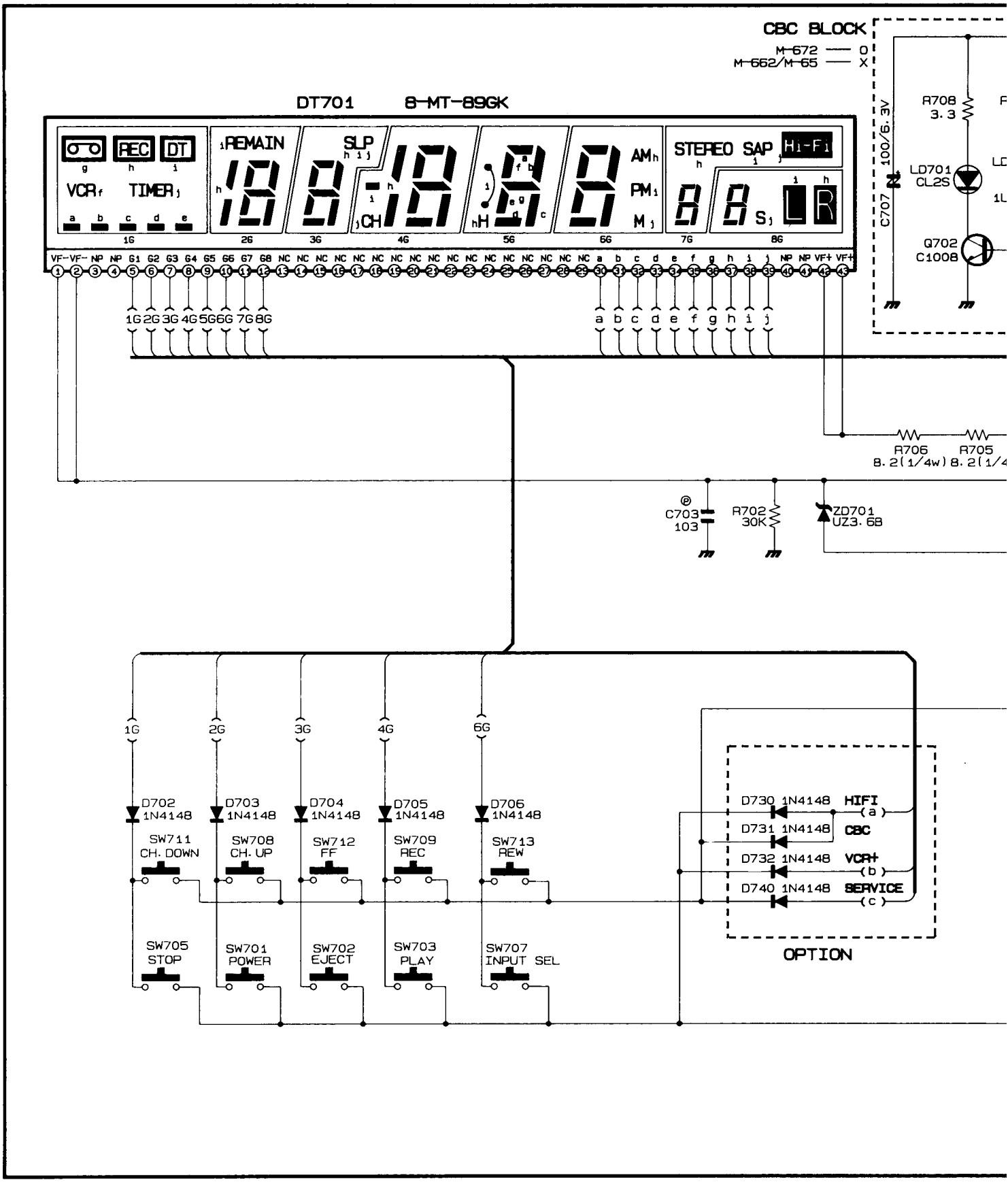


1	V. OUT	1
2	RESET	2
3	A. OUT	3
4	A. OUT L	4
5	REMOTE OUT	5
6	KEY IN 2	6
7	KEY IN 1	7
8	SHUTTLE	8
9	DATA OUT	9
10	DATA IN	10
11	CLK	11
12	JACK GND	12
13	GND	13
14	1G	14
15	2G	15
16	3G	16
17	VF+	17
18	AL5.8V	18
19	VF-	19
20	-30V	20

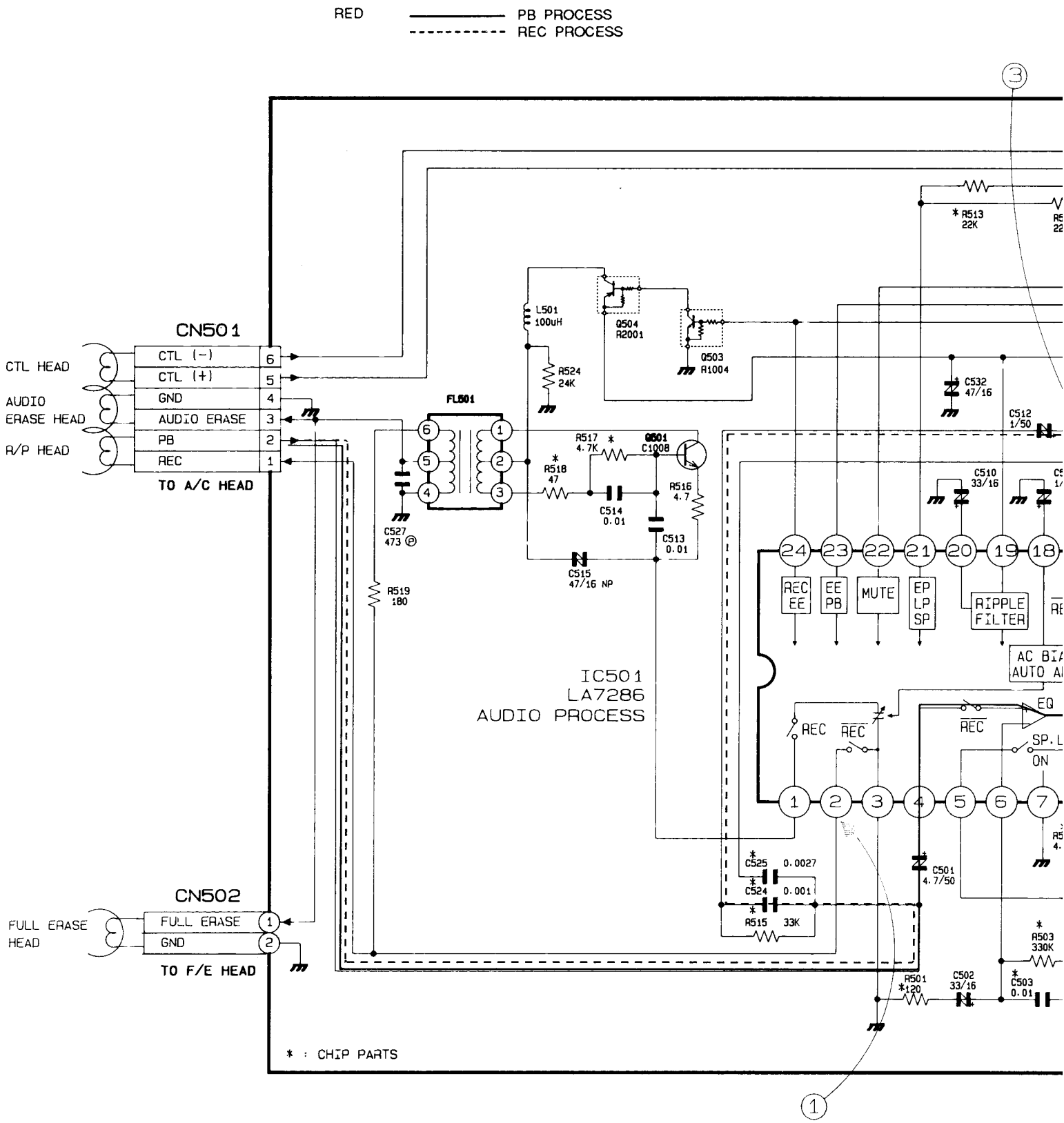
1	4G	1
2	5G	2
3	6G	3
4	7G	4
5	8G	5
6	a	6
7	b	7
8	c	8
9	d	9
10	e	10
11	f	11
12	-30V	12
13	g	13
14	h	14
15	i	15
16	j	16
17	GND	17
18	GND	18
19	CBC IN	19
20	GND	20

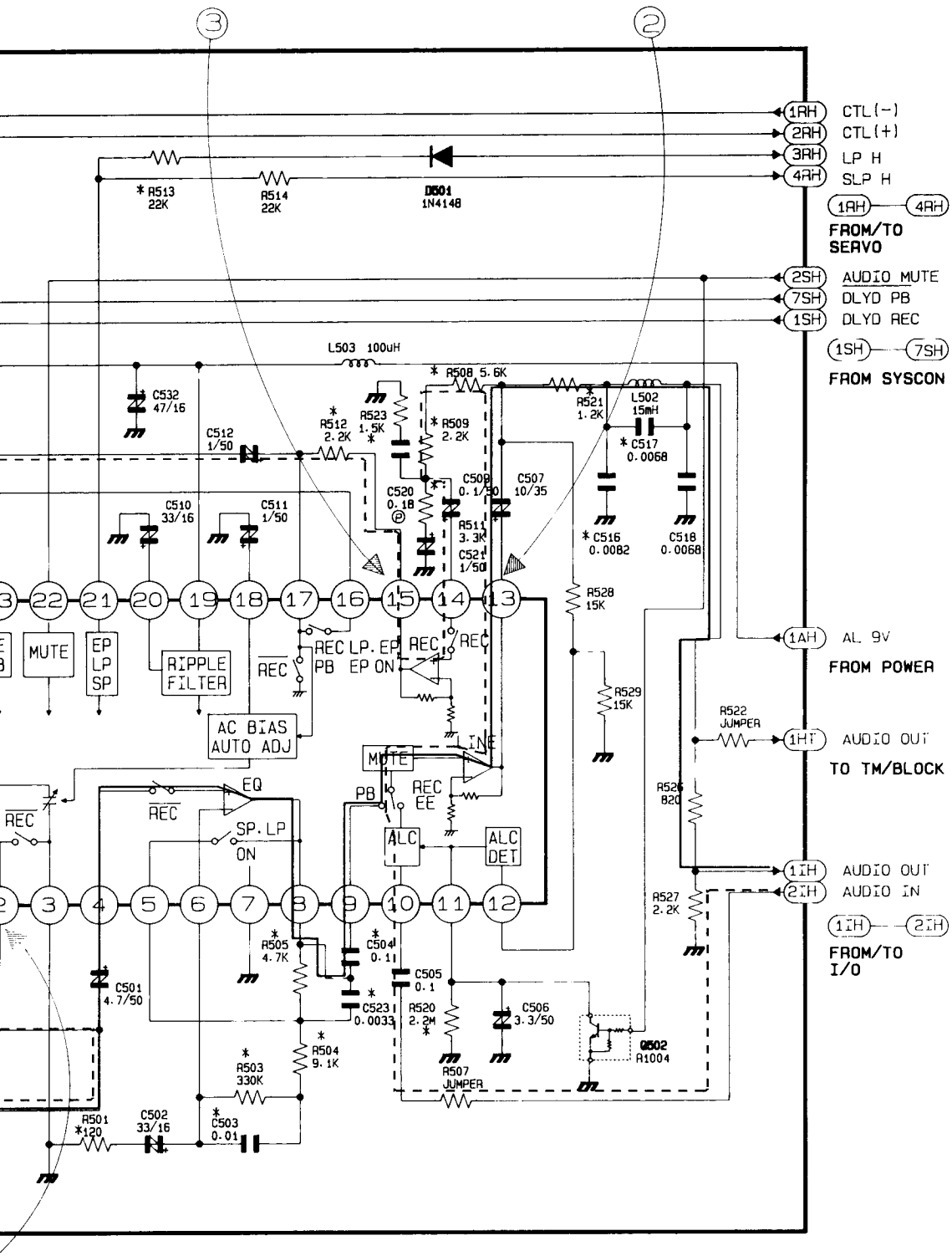

BLOCK
72 — 0
55 — X
C704
100/6.3V
L702
100uH
C706
100/6.3V
C705
103
RM701
GP1U781
GND
VCC
OUT
JK701
V.IN
JK702
A.IN L
JK703
A.IN R
R708
3.3
R704
3.3
R705
3.3
LD701
CL2S
LD702
1L5EU
LD703
1L5EU
C707
100/6.3V
C702
103
C701
100/6.3V
R702 47K
C708
102
L701
100uH
Q702
C1008
Q701
C1008
CN701
R701
75
1 V.OUT 1
2 RESET 2
3 A.OUT R 3
4 A.OUT L 4
5 REMOTE OUT 5
6 KEY IN 2 6
7 KEY IN 1 7
8 SHUTTLE 8
9 DATA OUT 9
10 DATA IN 10
11 CLK 11
12 JACK GND 12
13 GND 13
14 1G 14
15 2G 15
16 3G 16
17 VF+ 17
18 AL5.8V 18
19 VF− 19
20 −30V 20
FROM OR TO SYSCON(CN603)
R706
8.2(1/4W)
R705
8.2(1/4W)
ZD701
UZ3.6B
D701
1N4002
Q705
R1002
Q703
R2001
R711
15K
R709
4.7K
Q706
R1002
Q704
R2001
R712
15K
R710
4.7K
HIFI
CBC
VCR+
SERVICE
PTION
CN702
1 4G 1
2 5G 2
3 6G 3
4 7G 4
5 8G 5
6 a 6
7 b 7
8 c 8
9 d 9
10 e 10
11 f 11
12 −30V 12
13 g 13
14 h 14
15 i 15
16 j 16
17 GND 17
18 GND 18
19 CBC IN 19
20 GND 20
FROM OR TO SYSCON(CN602)

10-6. F/TIMER (M672/M672C/M662/M662C/M65/M65C)

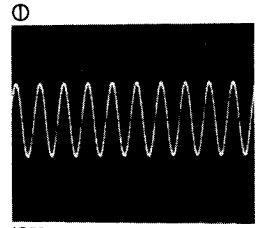


10-7. LINEAR AUDIO (M472/M462/M45)



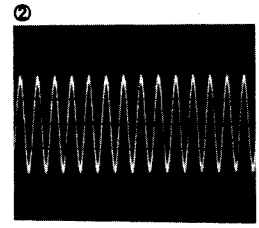


①



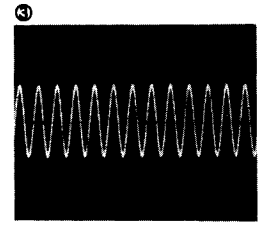
IC501-2
5.0Vp-p
REC

②



IC501-13
2.0Vp-p
PB/REC

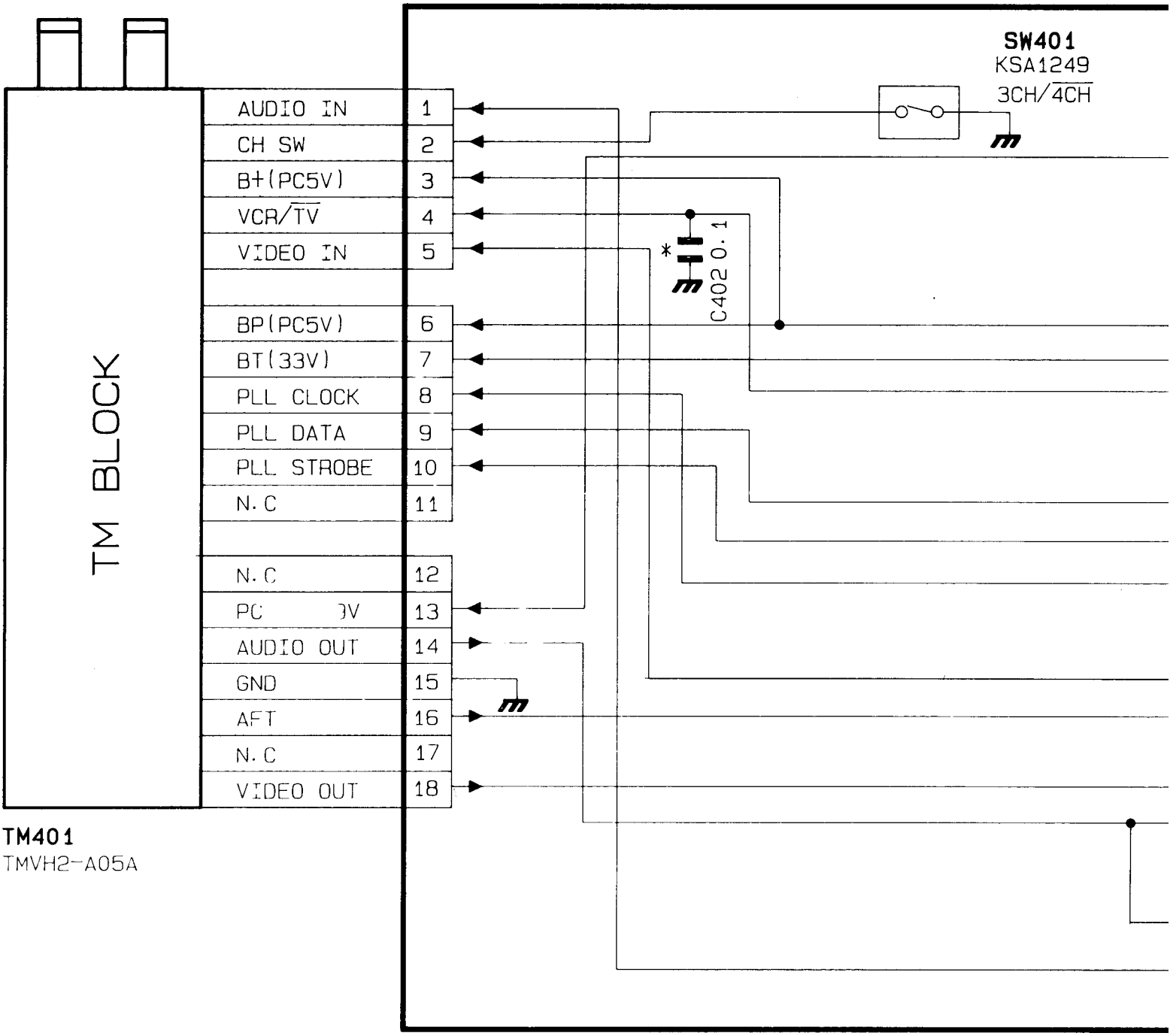
③

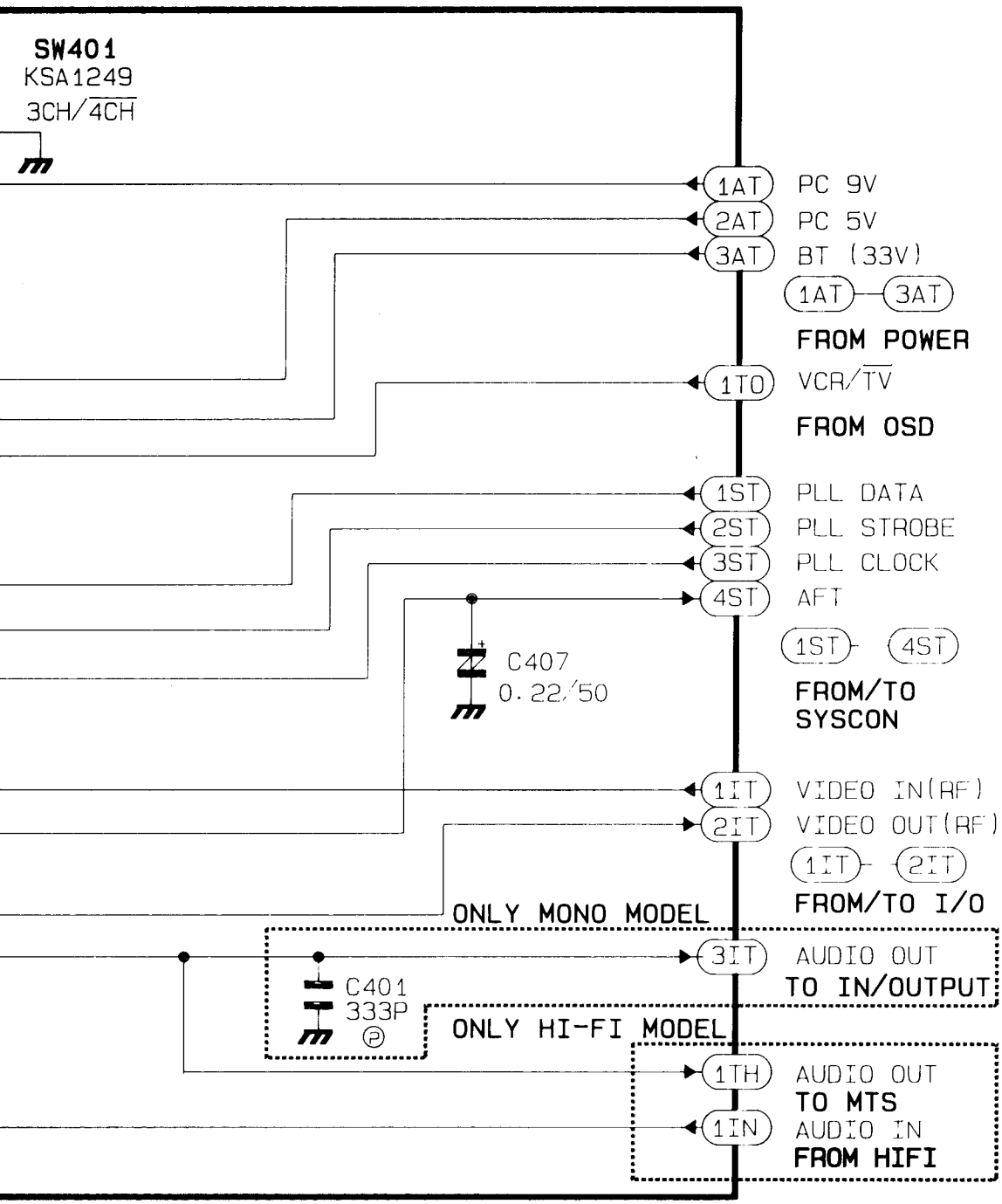


IC501-15
1.5Vp-p
PB/REC

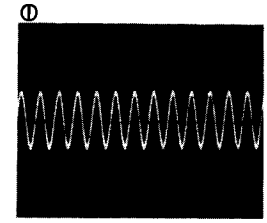
MODE / LOCA.NO	STOP	REC	PLAY
IC501			
1	0	4.9	5.0
2	0	0	0
3	6.5	5.0	5.0
4	0	0	0
5	0	0.3	0.3
6	0	1.8	0.2
7	0	0	0
8	0	5.0	5.0
9	0	5.0	5.0
10	0.6	1.5	-0.3
11	0.2	4.6	4.6
12	4.5	0	0
13	-0.5	0	0
14	-5.0	4.9	0
15	-0.5	5.0	0
16	0	4.9	4.9
17	4.0	0	0
18	0	0	0
19	-0.5	0	0
20	5.1	5.0	5.0
21	-0.5	3.5	3.5
22	5.4	5.0	5.0
23	-0.5	1.9	2.2
24	2.4	4.9	5.3
Q501			
E	7.9	6.1	6.2
B	0.6	8.7	0.6
C	0.6	6.2	0.7
Q502			
E	0	0	0
B	4.8	0	0
C	0	1.7	0
Q503			
E	0	0	0
B	0	4.6	0
C	8.8	0	8.8
Q504			
E	8.8	8.8	8.8
B	8.8	0	8.8
C	0.6	8.7	0.6

10-8. TUNER


TM BLOCK
AUDIO IN 1
CH SW 2
B+(PC5V) 3
VCR/TV 4
VIDEO IN 5
BP(PC5V) 6
BT(33V) 7
PLL CLOCK 8
PLL DATA 9
PLL STROBE 10
N.C 11
N.C 12
PC)V 13
AUDIO OUT 14
GND 15
AFT 16
N.C 17
VIDEO OUT 18
TM401
TMVH2-A05A
SW401
KSA1249
3CH/4CH
* C402 0.1

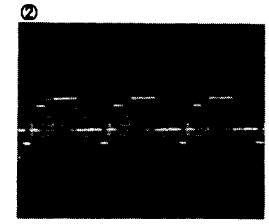


①

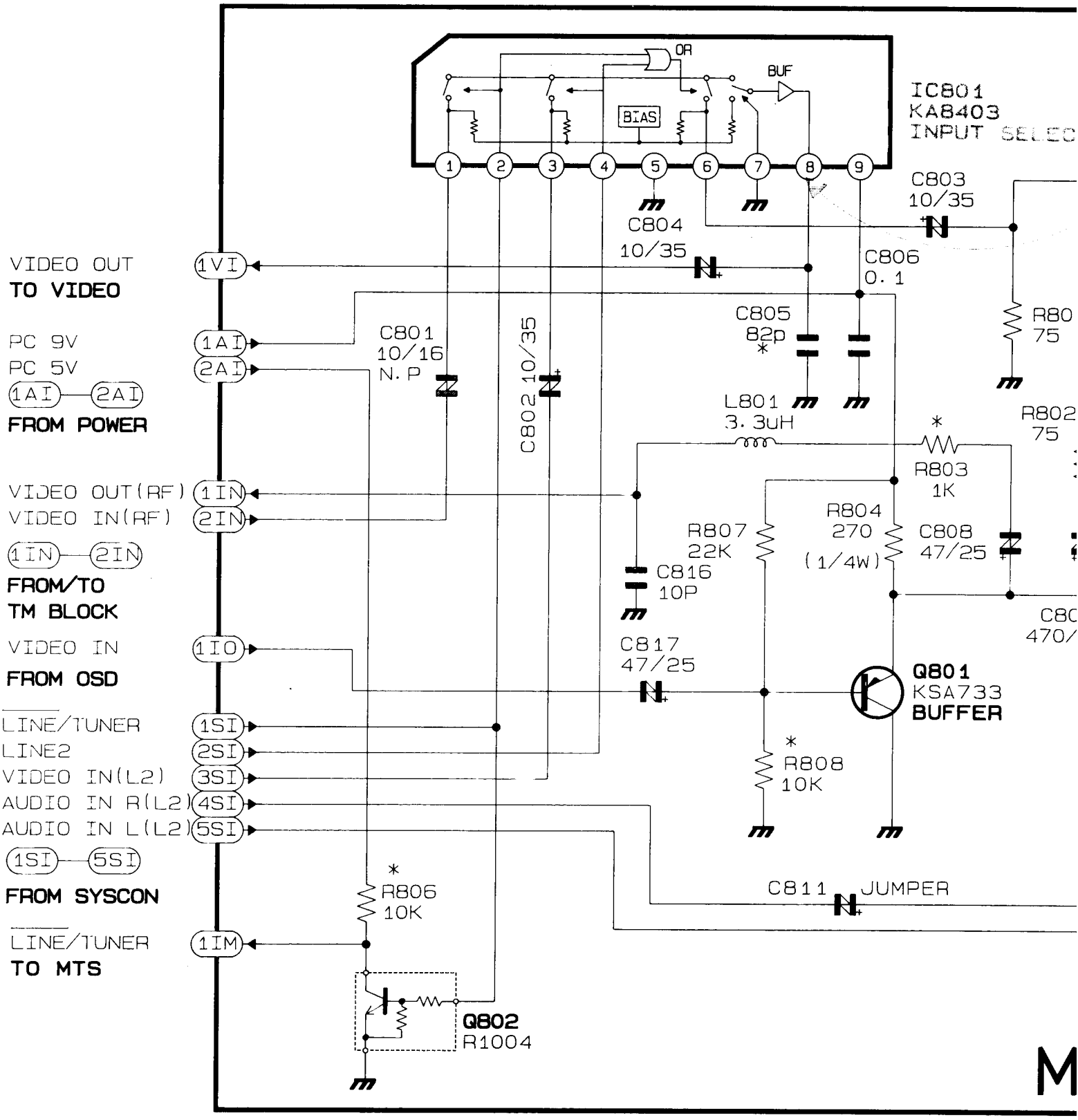


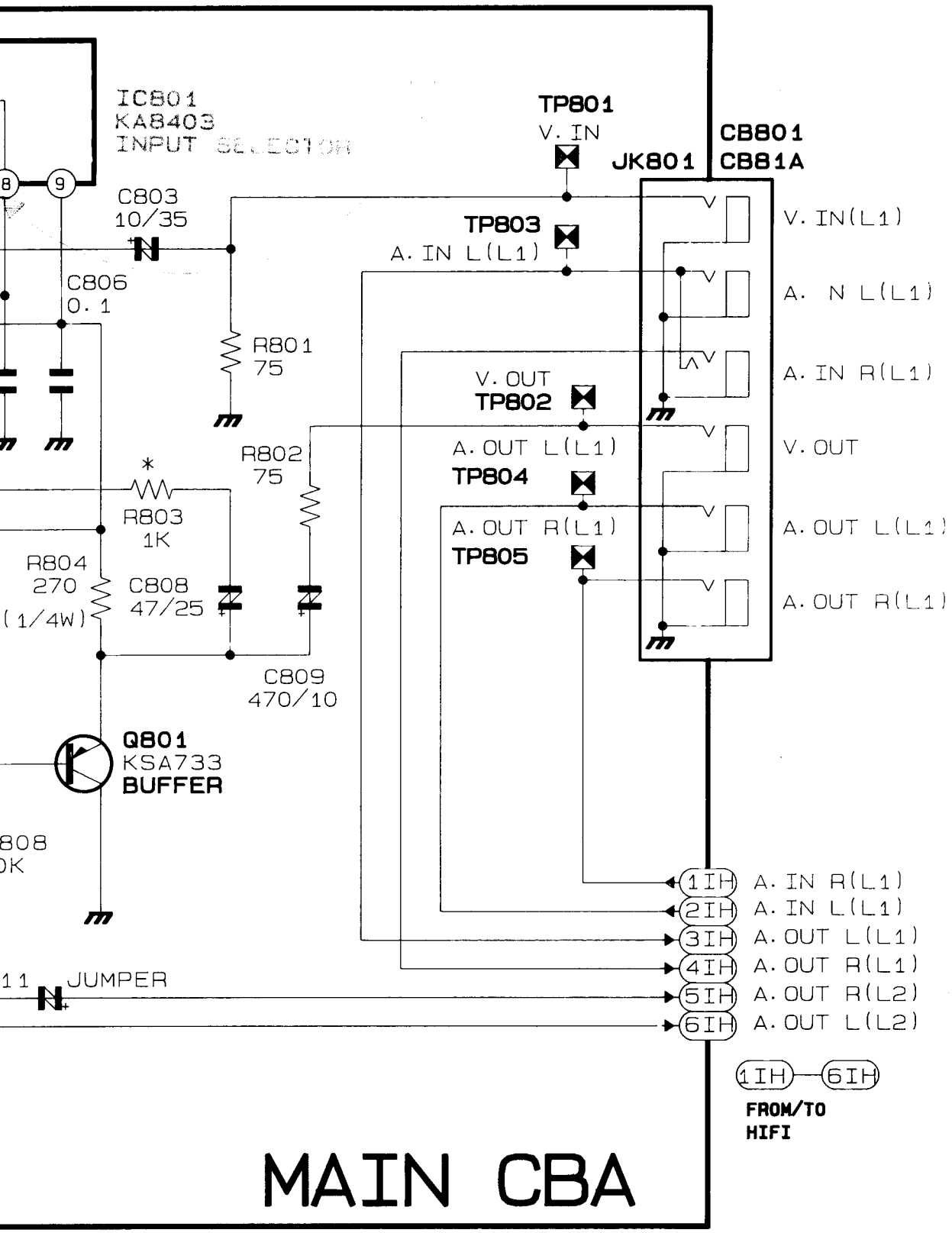
TM401-14
1.2Vp-p
REC

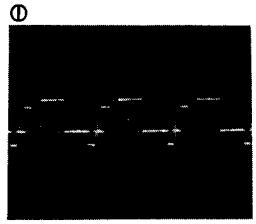
②



TM401-18
1.0Vp-p
REC


IC801
KA8403
INPUT SELEC
OR
BUF
BIAS
C803
10/35
C804
10/35
C806
0.1
C805
82p
*
C801
10/16
N.P
C802 10/35
L801
3.3uH
R803
1K
R804
270
(1/4W)
R807
22K
C808
47/25
C816
10P
C817
47/25
Q801
KSA733
BUFFER
R808
10K
R806
10K
C811
JUMPER
Q802
R1004
VIDEO OUT
TO VIDEO
1VI
PC 9V
PC 5V
1AI
2AI
FROM POWER
VIDEO OUT(RF)
VIDEO IN(RF)
1IN
2IN
FROM/TO
TM BLOCK
VIDEO IN
1IO
FROM OSD
LINE/TUNER
LINE2
VIDEO IN(L2)
AUDIO IN R(L2)
AUDIO IN L(L2)
1SI
2SI
3SI
4SI
5SI
FROM SYSCON
LINE/TUNER
1IM
TO MTS

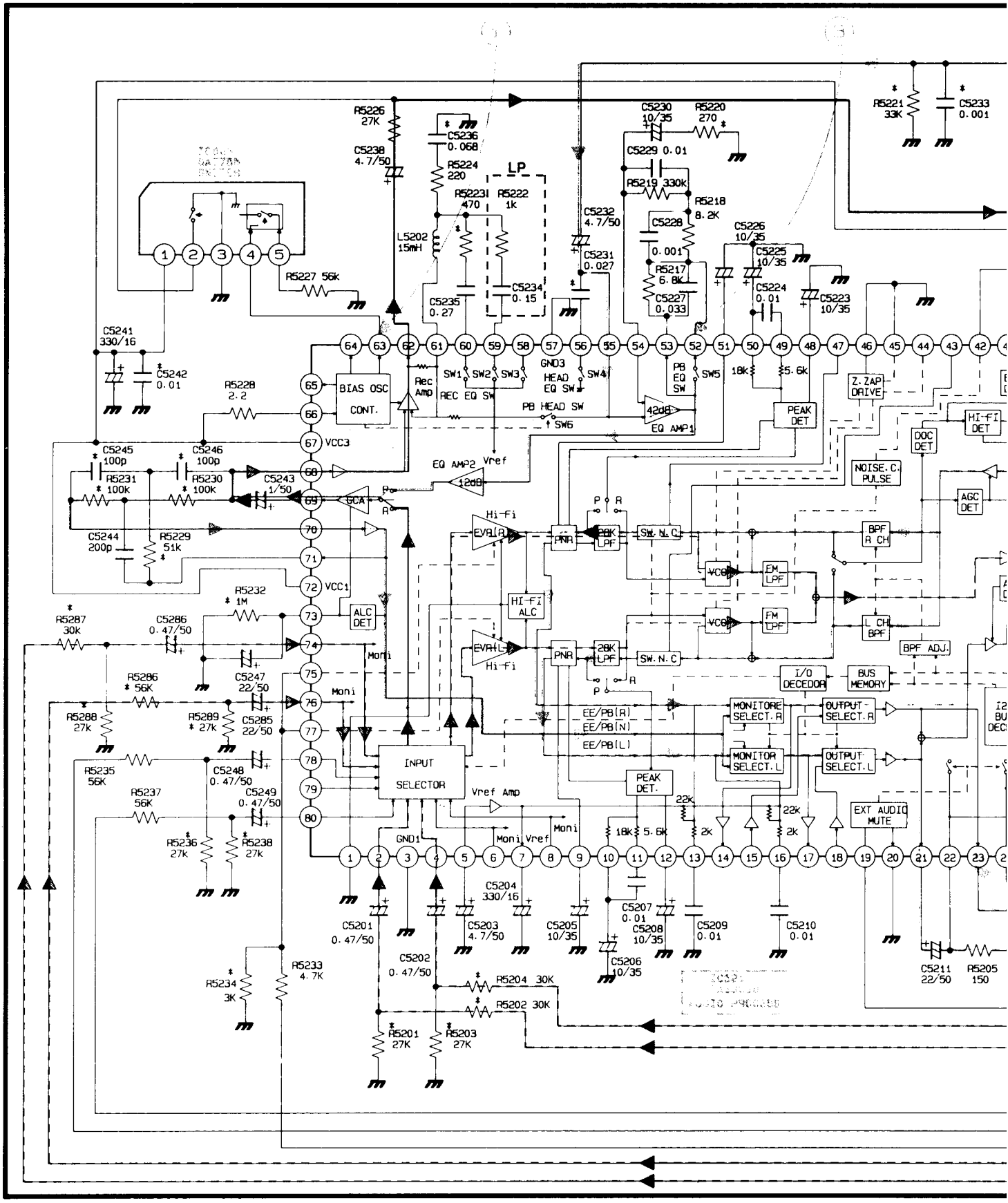


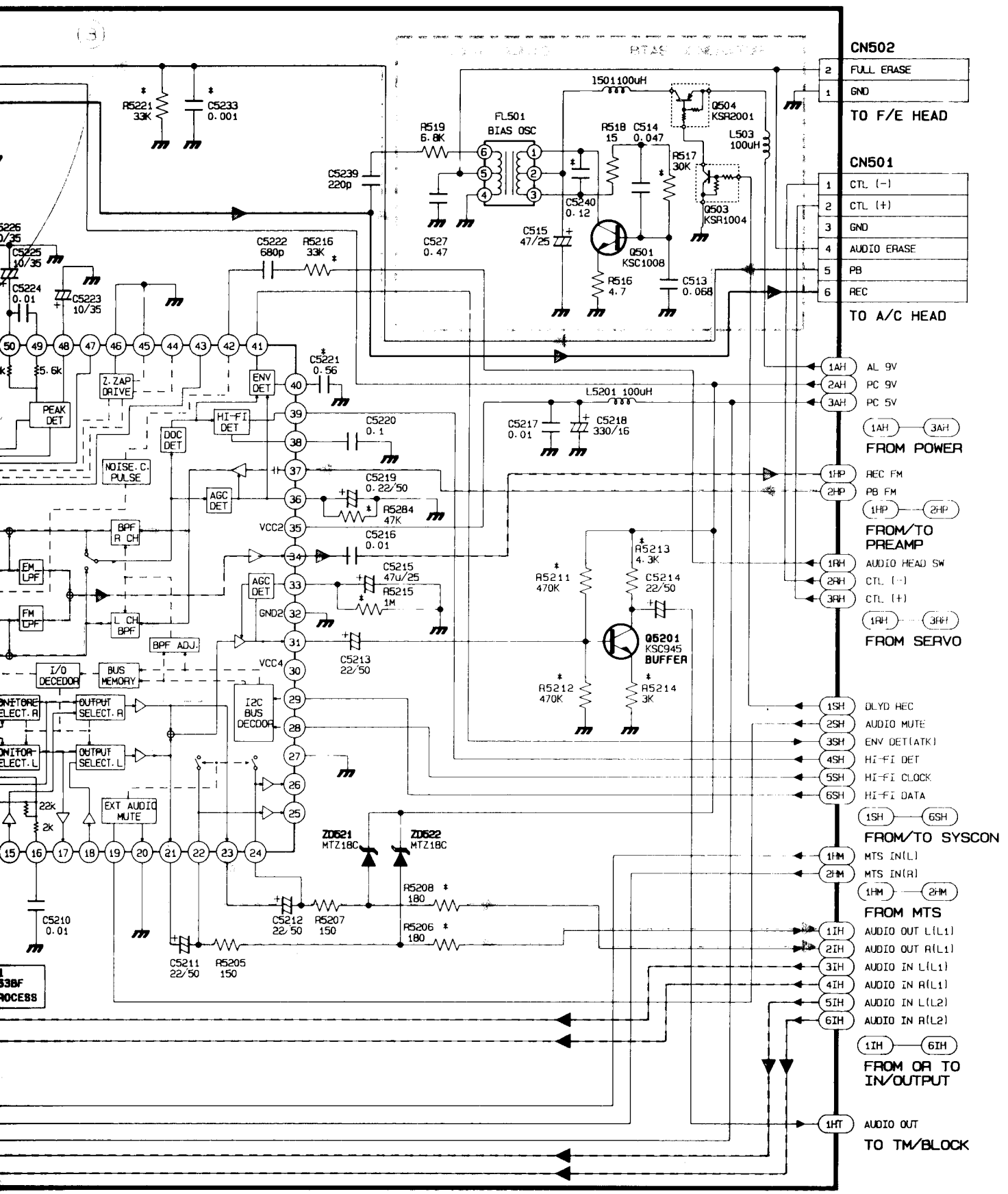


IC801-8
1.0Vp-p
REC

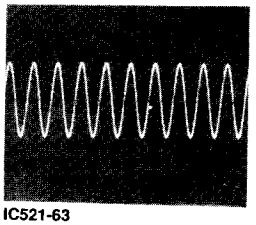
MODE / LOCA.NO	STOP	REC	PLAY
IC801			
1	6.1	6.1	6.1
2	4.6	0	0.9
3	6.1	6.1	6.1
4	0.8	0.8	4.5
5	0	0	0
6	6.1	6.1	6.1
7	0	0	0
8	5.3	5.3	5.3
9	8.9	8.9	8.9
Q801			
E	4.3	4.3	4.3
B	3.6	3.6	3.6
C	0	0	0

RED ——— REC(HIFI)
------- REC(MONO)
BLUE ——— PB
------- PB



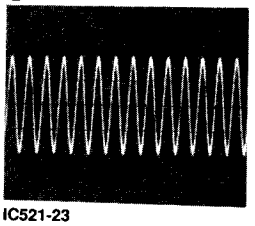

CN502
2 FULL ERASE
1 GND
TO F/E HEAD
CN501
1 CTL (-)
2 CTL (+)
3 GND
4 AUDIO ERASE
5 PB
6 REC
TO A/C HEAD
R5221 33K
C5233 0.001
C5239 220p
R519 6.8K
FL501 BIAS OSC
1501100uH
Q504 KSR2001
R518 15
C514 0.047
L503 100uH
R517 30K
Q503 KSR1004
C5240 0.12
C515 47/25
Q501 KSC1008
C527 0.47
R516 4.7
C513 0.068
C5222 680p
R5216 33K
C5225 10/35
C5224 0.01
C5223 10/35
C5221 0.56
L5201 100uH
C5217 0.01
C5218 330/16
1AH AL 9V
2AH PC 9V
3AH PC 5V
FROM POWER
1HP REC FM
2HP PB FM
FROM/TO PREAMP
1RH AUDIO HEAD SW
2RH CTL (-)
3RH CTL (+)
FROM SERVO
1SH DLYD REC
2SH AUDIO MUTE
3SH ENV DET(ATK)
4SH HI-FI DET
5SH HI-FI CLOCK
6SH HI-FI DATA
FROM/TO SYSCON
1HM MTS IN(L)
2HM MTS IN(R)
FROM MTS
1IH AUDIO OUT L(L1)
2IH AUDIO OUT R(L1)
3IH AUDIO IN L(L1)
4IH AUDIO IN R(L1)
5IH AUDIO IN L(L2)
6IH AUDIO IN R(L2)
FROM OR TO IN/OUTPUT
1HT AUDIO OUT
TO TM/BLOCK
PEAK DET
2.2AP DRIVE
ENV DET
HI-FI DET
DOC DET
NOISE.C. PULSE
AGC DET
BPF R CH
BPF L CH
FM LPF
BPF ADJ.
I/O DECEDOR
BUS MEMORY
OUTPUT SELECT.A
OUTPUT SELECT.L
I2C BUS DECDOR
EXT AUDIO MUTE
VCC2
VCC4
GND2
C5220 0.1
C5219 0.22/50
R5284 47K
C5216 0.01
C5215 47u/25
R5215 1M
C5213 22/50
R5213 4.3K
R5211 470K
C5214 22/50
Q5201 KSC945 BUFFER
R5212 470K
R5214 3K
ZD621 MTZ18C
ZD622 MTZ18C
R5208 180
R5206 180
C5212 22/50
R5207 150
C5211 22/50
R5205 150
C5210 0.01
22k
2k

①



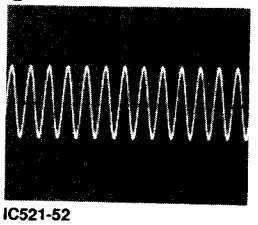
IC521-63
5.0Vp-p
REC

②



IC521-23
2.0Vp-p
PB/REC

③



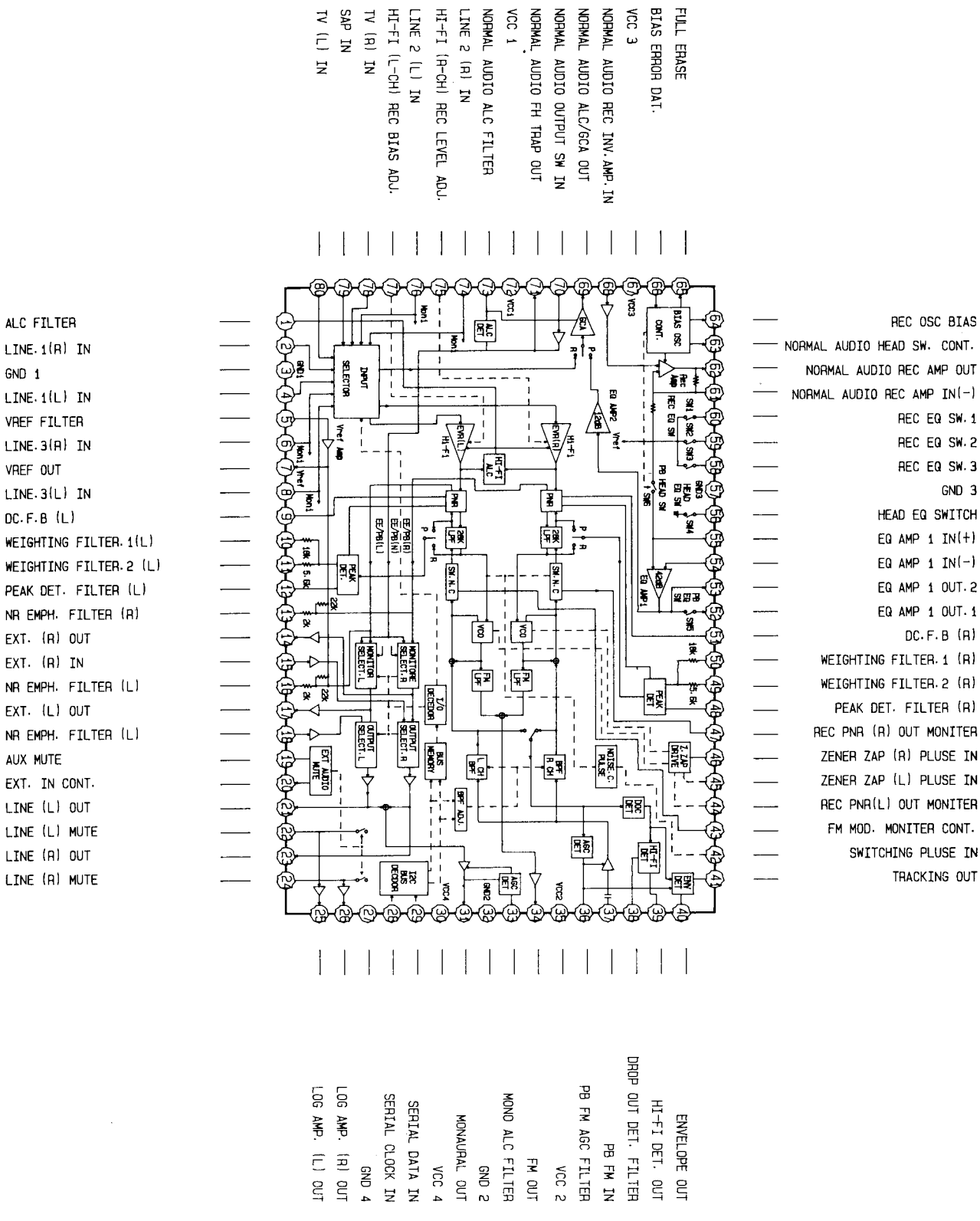
IC521-52
1.5Vp-p
PB/REC

MODE / LOCA.NO	STOP	REC	PLAY
IC521			
1	0	0	0
2	4.4	4.4	4.4
3	0	0	0
4	4.4	4.4	4.4
5	4.4	4.4	4.4
6	4.4	4.4	4.4
7	4.4	4.4	4.4
8	4.4	4.4	4.4
9	4.4	4.4	4.4
10	4.4	4.4	4.4
11	4.4	4.4	4.4
12	0.9	0.4	0.9
13	4.4	4.4	4.4
14	4.4	4.4	4.4
15	4.4	4.4	4.4
16	4.4	4.4	4.4
17	4.4	4.4	4.4
18	4.4	4.4	4.4
19	0	0	0
20	0	0	0
21	4.4	4.4	4.4
22	0	0	0
23	4.4	4.4	4.4
24	0	0	0
25	3.8	3.0	3.8
26	3.7	3.0	3.7
27	0	0	0
28	4.2	4.2	4.2
29	4.0	4.0	4.0
30	2.0	2.0	2.0
31	4.4	4.4	4.4
32	0	0	0
33	1.1	0.6	1.1
34	0	0.3	2.3
35	5.0	5.0	5.0
36	0.3	1.6	0.9
37	0	0	0
38	0	0	0
39	0	0	0
40	0	3.7	0
41	0.1	3.7	0.1
42	4.4	4.4	4.4
43	2.3	4.4	2.3
44	4.4	4.4	4.4
45	0	0	0
46	0	0	0
47	4.4	4.4	4.4
48	0.8	0.8	0.8
49	4.4	4.4	4.4

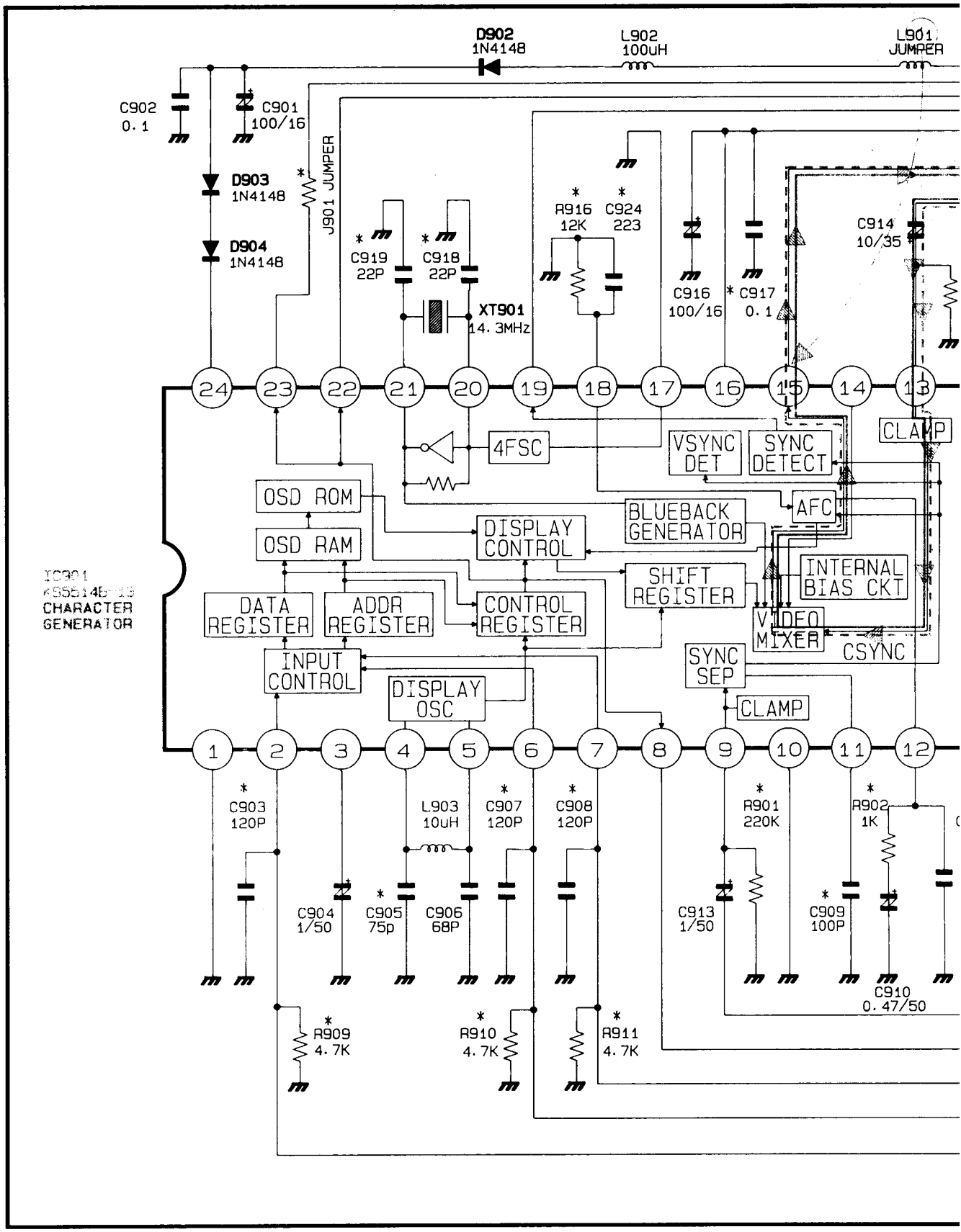
MODE / LOCA.NO	STOP	REC	PLAY
50	4.4	4.4	4.4
51	4.4	4.4	4.4
52	4.4	4.4	4.4
53	4.4	4.4	4.4
54	4.4	4.4	4.4
55	4.4	4.4	4.4
56	0	0	0
57	0	0	0
58	1.2	1.2	1.2
59	1.2	1.2	1.2
60	1.2	1.2	1.2
61	4.4	4.4	4.4
62	4.4	4.4	4.4
63	0	0	4.3
64	0	0	8.3
65	0	0	8.3
66	8.9	8.9	8.9
67	8.9	8.9	8.9
68	4.4	4.4	4.4
69	4.4	4.4	4.4
70	4.4	4.4	4.4
71	4.4	4.4	4.4
72	8.9	8.9	8.9
73	0.5	0	0.6
74	4.3	4.3	4.3
75	1.9	1.9	1.9
76	4.4	4.4	4.4
77	1.9	1.9	1.9
78	4.4	4.4	4.4
79	4.4	4.4	4.4
80	4.4	4.4	4.4
Q5201			
E	0.7	0.7	0.7
B	4.4	4.4	4.4
C	6.7	6.7	6.7

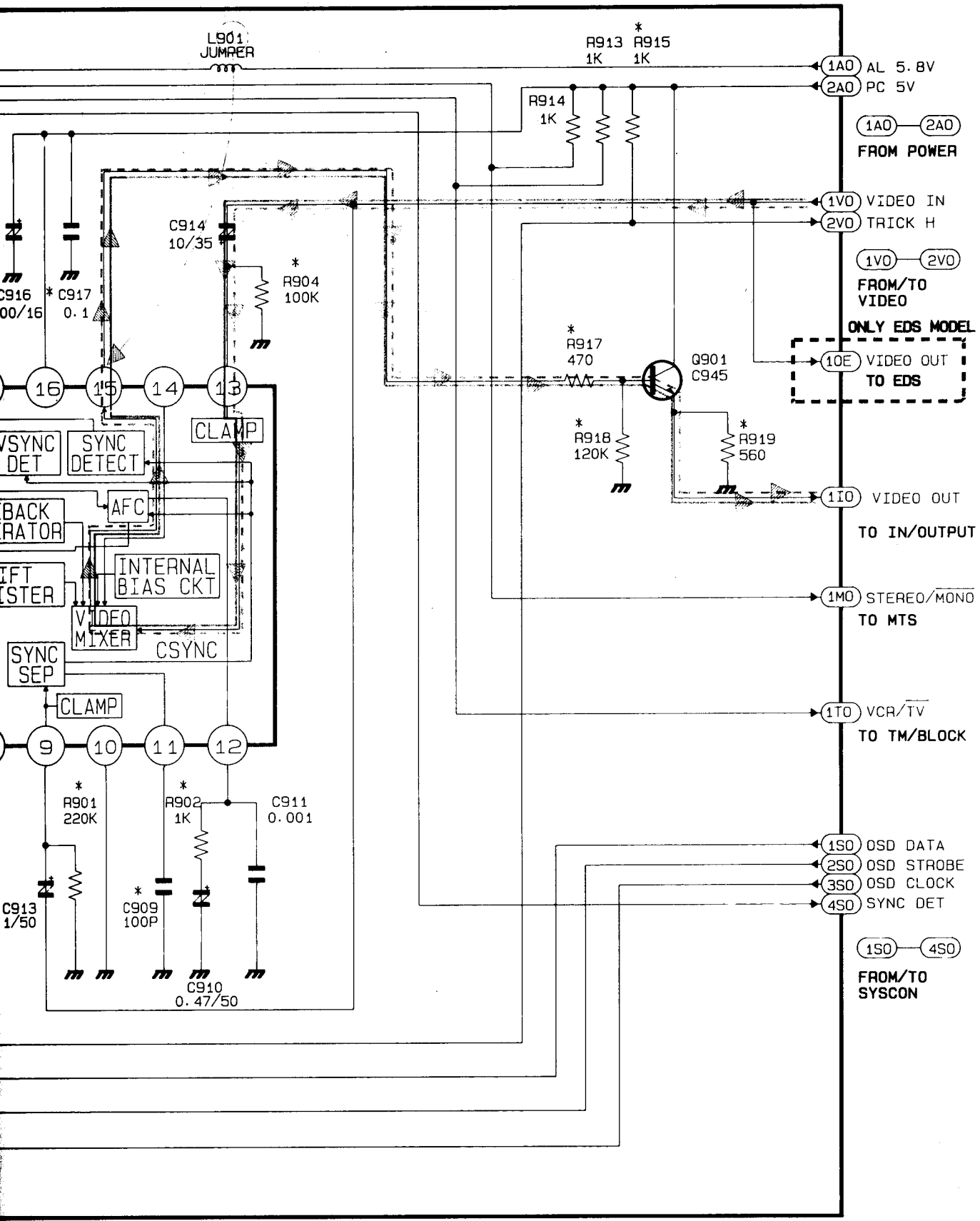
MODE / LOCA.NO	STOP	REC	PLAY
IC521			
1	4.9	4.9	4.5
2	0	0	0.9
3	5.1	2.5	0
4	0	0	0
5	1.8	1.8	3.2
6	2.9	2.9	2.7
7	4.9	4.9	4.5
8	0	0	0
9	0	0	0
10	2.9	2.9	2.8
11	0.5	0.5	1.3
12	0.2	0.2	5.0
13	0	0	0.7
14	0	0	0.5
15	0	0	1.8
16	0	0	0
17	0.8	0.8	0
18	0.7	0.7	0
19	0	0	0
20	0.7	0.7	0
21	0.8	0.8	0
22	0	0	0
23	0	0	3.8
24	0	0	3.8

IC521 TA8863AF

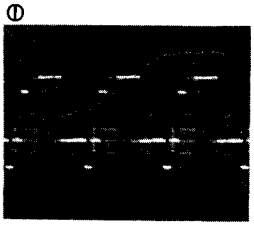


BLUE ——— PB PROCESS



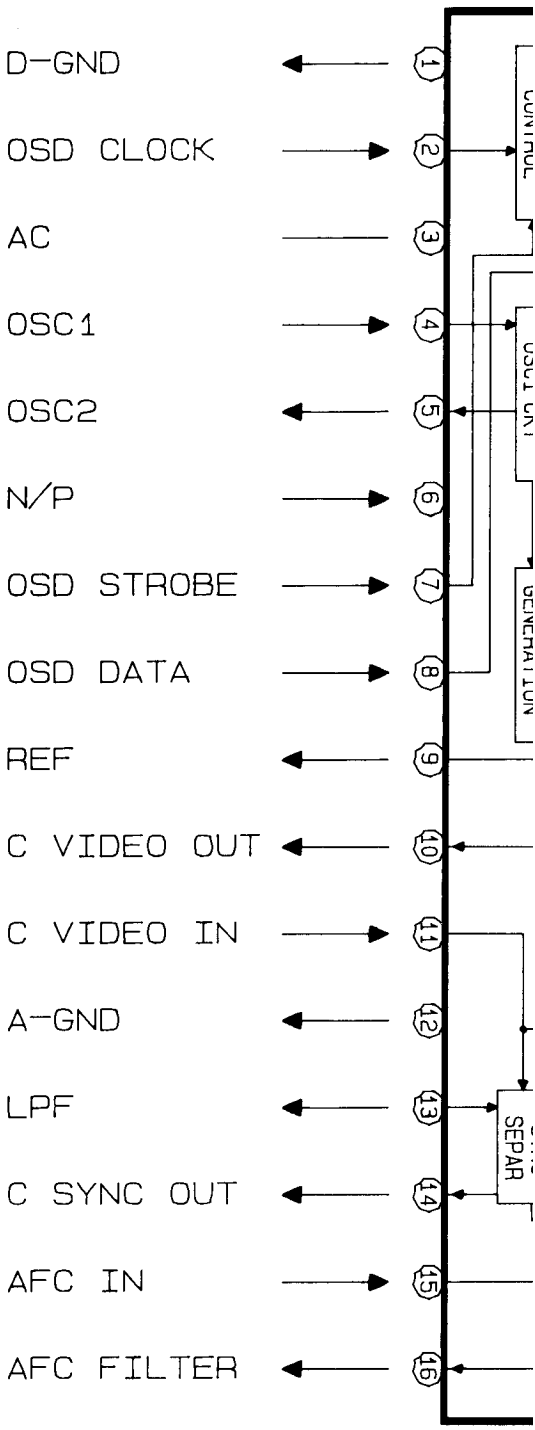

L901
JUMPER
R913 1K
R915 1K
R914 1K
1A0 AL 5.8V
2A0 PC 5V
1A0 — 2A0
FROM POWER
1V0 VIDEO IN
2V0 TRICK H
1V0 — 2V0
FROM/TO VIDEO
ONLY EDS MODEL
1E0 VIDEO OUT
TO EDS
C914 10/35
R904 100K
C916 00/16
C917 0.1
R917 470
Q901 C945
R918 120K
R919 560
16
15
14
13
CLAMP
VSYNC DET
SYNC DETECT
BACK RATOR
AFC
IFT ISTER
INTERNAL BIAS CKT
VIDEO MIXER
CSYNC
1IO VIDEO OUT
TO IN/OUTPUT
SYNC SEP
CLAMP
1MO STEREO/MONO
TO MTS
1TO VCR/TV
TO TM/BLOCK
9
10
11
12
R901 220K
R902 1K
C911 0.001
C913 1/50
C909 100P
C910 0.47/50
1SO OSD DATA
2SO OSD STROBE
3SO OSD CLOCK
4SO SYNC DET
1SO — 4SO
FROM/TO SYSCON

①

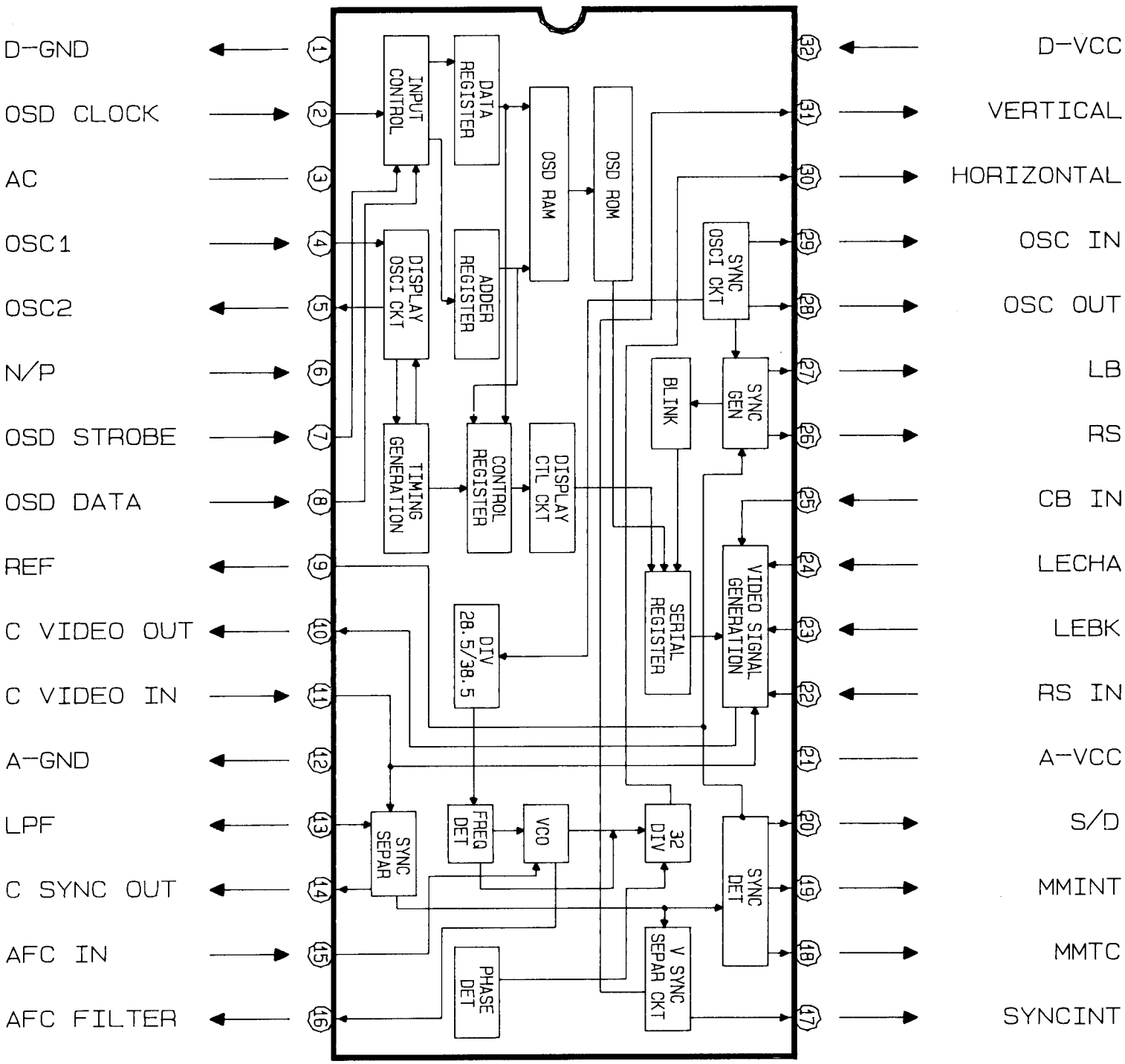


IC901-15
2.0Vp-p
PB/REC

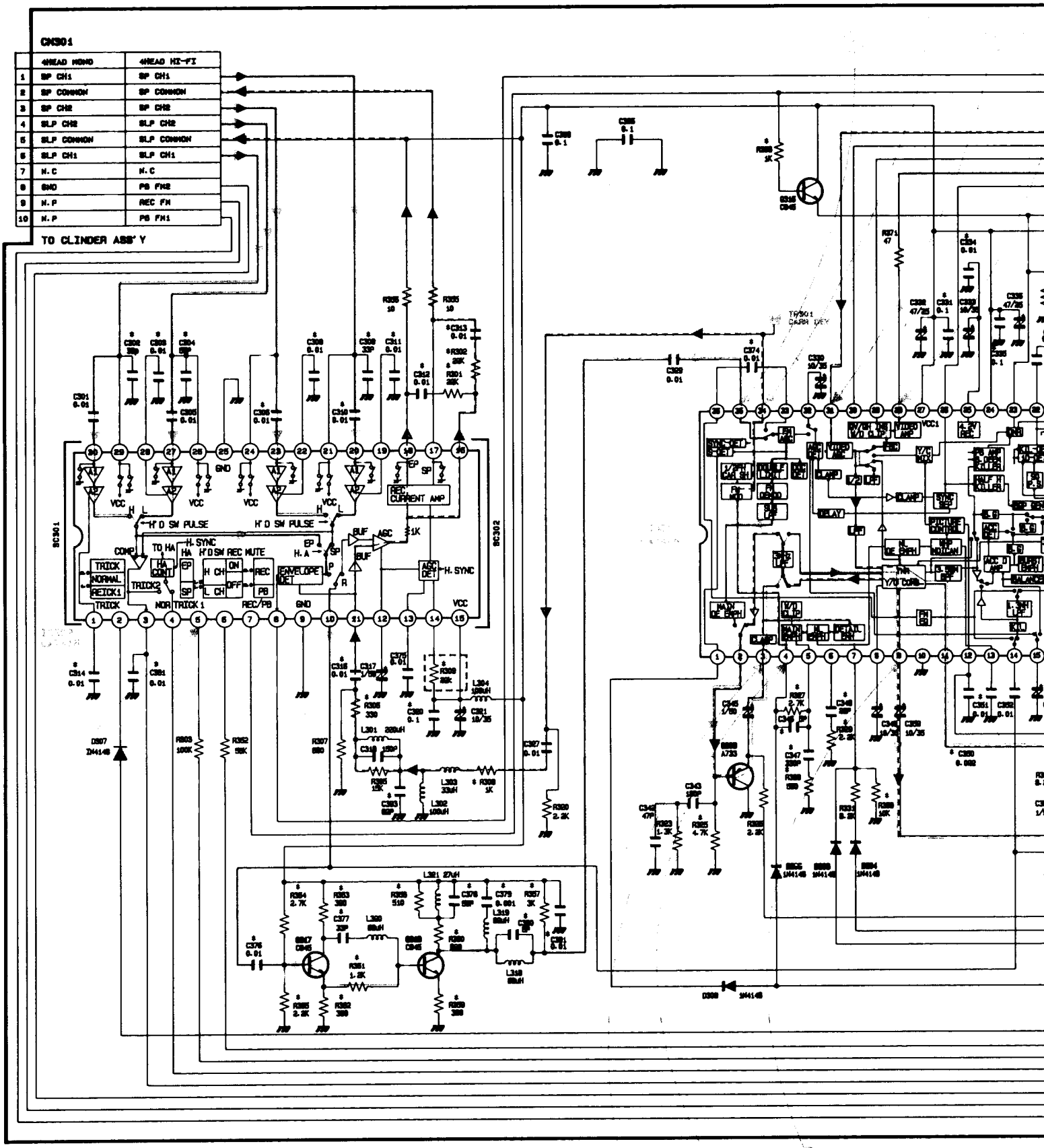
MODE / LOCA.NO	STOP	REC	PLAY
IC901			
1	0	0	0
2	4.0	4.0	4.0
3	3.9	3.9	3.9
4	1.7	1.7	1.7
5	1.5	1.5	1.5
6	3.9	3.9	3.9
7	0	0	0
8	0.8	0.8	0.8
9	1.7	1.7	2.5
10	0	0	0
11	1.9	1.9	2.7
12	2.7	2.7	2.7
13	1.6	1.6	2.4
14	2.0	2.3	2.0
15	0.8	3.1	3.4
16	5.0	5.0	5.0
17	0	0	0
18	0.7	0.7	0.7
19	0	0	4.9
20	1.6	1.6	1.6
21	1.9	1.9	1.9
22	4.1	4.1	0.8
23	0.8	0.8	0.8
24	3.9	3.9	3.9
Q901			
E	2.3	2.4	2.2
B	3.0	3.0	3.0
C	5.0	5.0	5.0

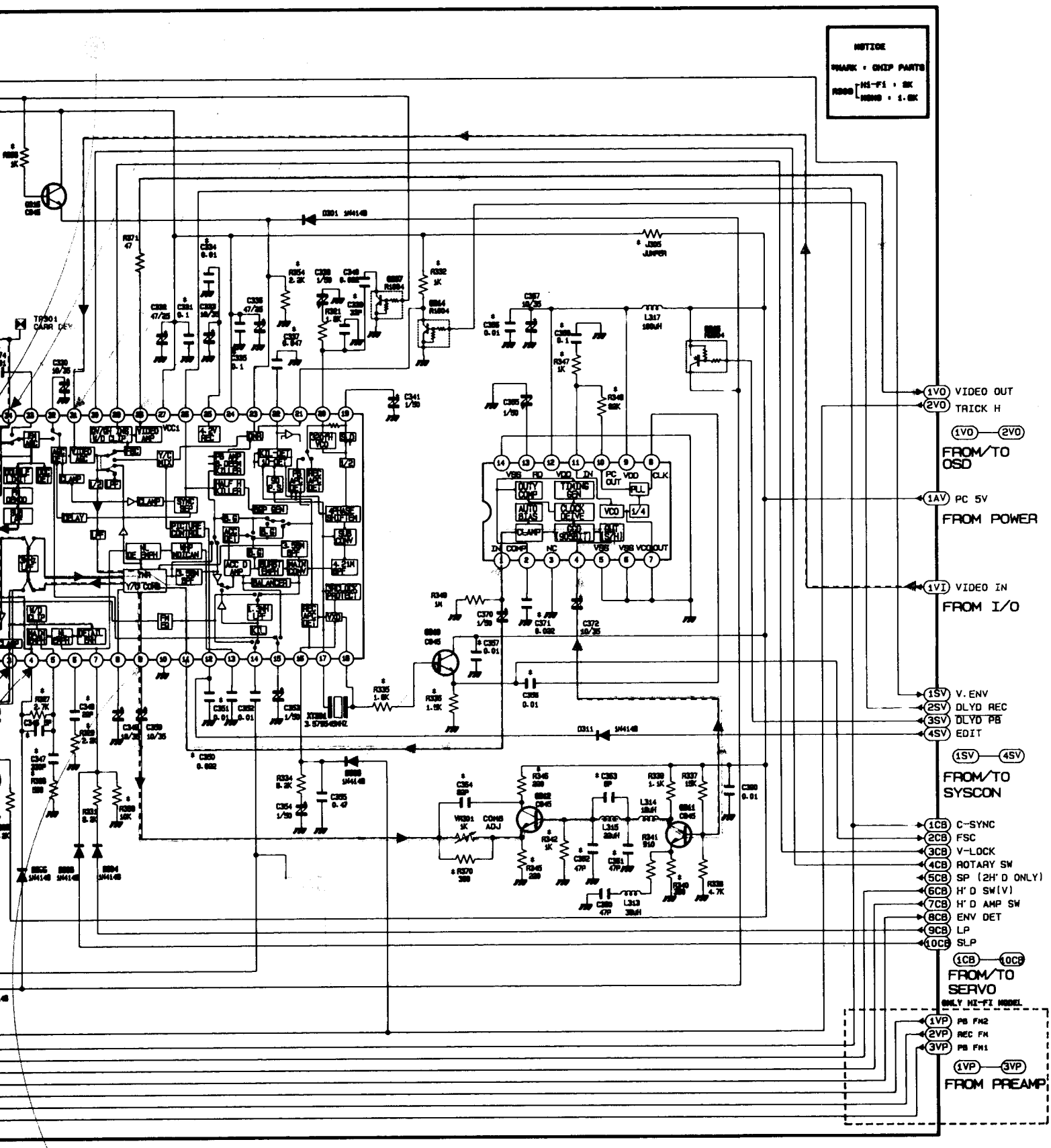


IC901 KS5514B-13

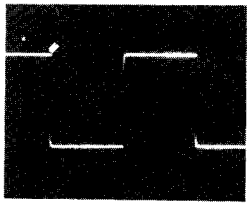


RED -------- REC VIDEO PROCESS BLUE ———— PB VIDEO PROCESS



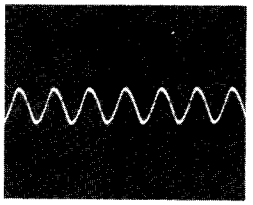

NOTICE
MARK • SKIP PARTS
R888 HI-FI • 8K
MONO • 1.8K
1VO VIDEO OUT
2VO TRICK H
1VO — 2VO
FROM/TO OSD
1AV PC 5V
FROM POWER
1VI VIDEO IN
FROM I/O
1SV V.ENV
2SV DLYD REC
3SV DLYD PB
4SV EDIT
1SV — 4SV
FROM/TO SYSCON
1CB C-SYNC
2CB FSC
3CB V-LOCK
4CB ROTARY SW
5CB SP (2H'D ONLY)
6CB H'D SW(V)
7CB H'D AMP SW
8CB ENV DET
9CB LP
10CB SLP
1CB — 10CB
FROM/TO SERVO
ONLY HI-FI MODEL
1VP PB FM2
2VP REC FM
3VP PB FM1
1VP — 3VP
FROM PREAMP

①



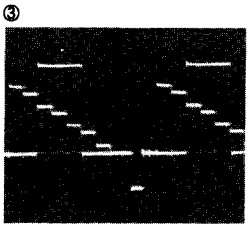
IC302-5
5.0Vp-p
PB/REC

②



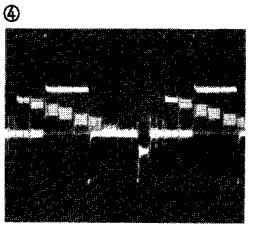
Q310-Base
3.0Vp-p
PB/REC

③



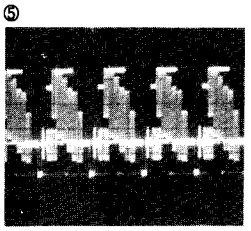
IC301-3
0.45Vp-p
PB/REC

④



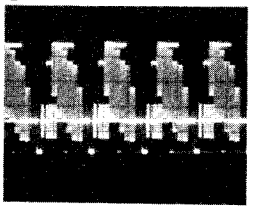
IC301-4
0.5Vp-p
REC

⑤



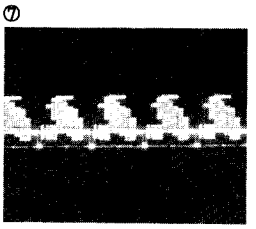
IC301-9
0.38Vp-p
PB/REC

⑥



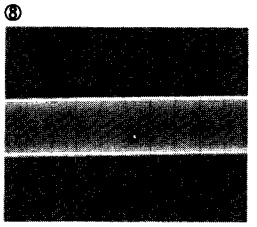
IC301-28
2.0Vp-p
PB/REC

⑦



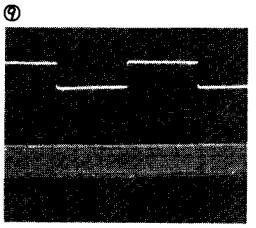
IC301-31
1Vp-p
PB/REC

⑧



IC301-34
1.0Vp-p
REC

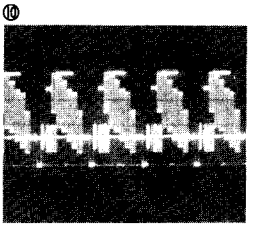
⑨



IC301-35
0.3Vp-p
PB

TP202
5.0Vp-p
PB

⑩

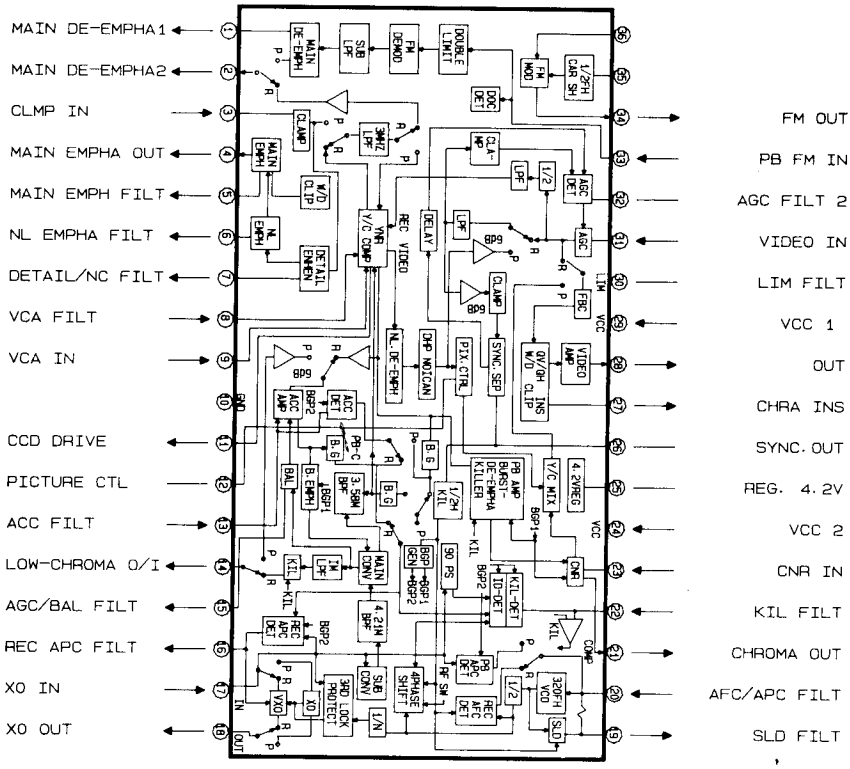


IC303-1
0.3Vp-p
PB/REC

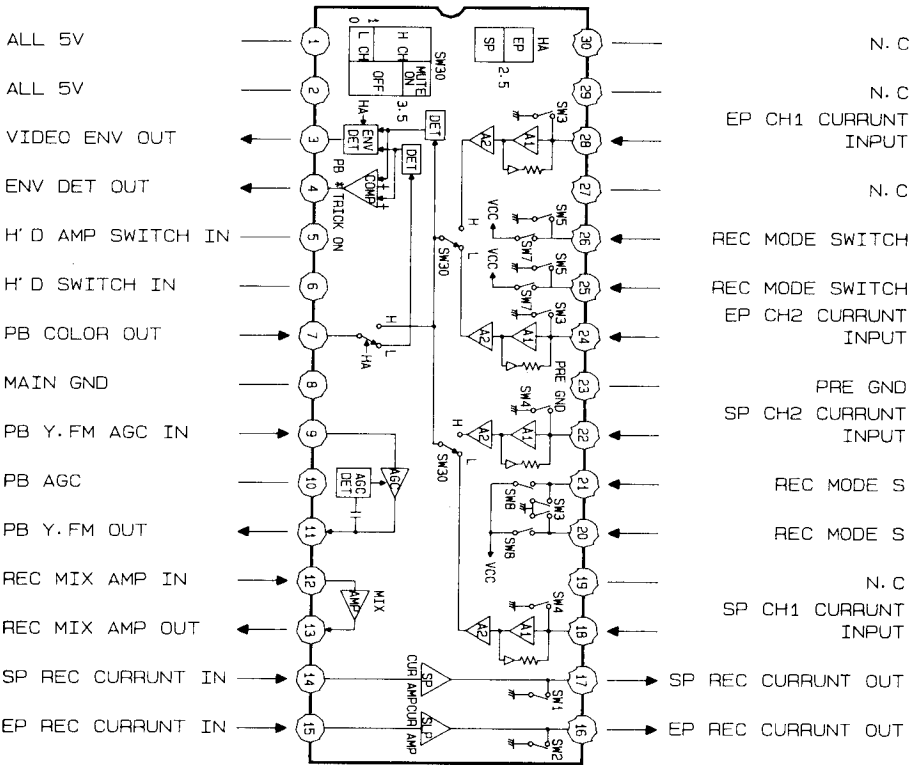
MODE / LOCA.NO	STOP	REC	PLAY
IC301			
1	3.0	3.0	4.3
2	2.0	2.0	2.9
3	2.9	2.9	2.9
4	2.1	2.1	4.2
5	2.1	2.1	4.2
6	2.8	2.8	2.8
7	0.5	4.4	4.4
8	2.4	2.4	2.4
9	2.0	2.0	2.0
10	0	0	0
11	1.0	1.0	1.0
12	2.4	2.4	2.4
13	2.4	2.4	2.4
14	2.2	2.2	3.0
15	2.2	2.2	2.2
16	2.0	2.0	2.0
17	3.7	3.7	3.7
18	2.5	2.5	2.5
19	2.7	2.7	2.7
20	2.6	2.6	2.6
21	3.2	0	3.2
22	2.7	2.0	2.5
23	0.8	3.9	4.0
24	4.8	4.8	4.8
25	4.0	4.0	4.0
26	0.6	0.7	0.2
27	4.8	4.8	4.8
28	0.7	0.8	2.7
29	0	0	0
30	2.5	2.5	2.5
31	2.9	2.9	3.7
32	1.5	1.5	1.5
33	1.1	1.1	0.2
34	3.0	3.0	3.4
35	0	0	3.5
36	3.3	2.4	0.7
IC302			
1	2.0	3.6	2.0
2	2.0	2.2	2.0
3	3.0	2.8	2.7
4	0.6	4.6	4.6
5	1.0	1.0	1.0
6	0.5	0.5	0.5
7	0	4.6	0
8	0.5	0.3	2.1
9	0	0	0
10	2.2	4.0	2.2
11	5.4	3.5	3.4
12	3.5	1.5	2.7

MODE / LOCA.NO	STOP	REC	PLAY
13	3.3	2.5	2.5
14	5.0	3.8	5.0
15	5.0	5.0	5.0
16	0	1.6	2.0
17	0	0	0
18	0	3.8	0
19	2.0	3.6	2.0
20	0.6	0.6	0.6
21	0	0	0
22	2.0	3.6	2.0
23	0.6	0.6	0.6
24	0	0	0
25	0	0	0
26	0	4.0	0
27	0.6	0.1	0.6
28	2.0	3.6	2.0
29	0	4.0	0
30	0.6	0	0.6
Q307			
E	0	0	0
B	0	4.6	0
C	0.2	0	0.3
Q310			
E	1.9	1.9	1.9
B	5.0	5.0	5.0
C	2.4	2.4	2.4
Q311			
E	0.5	0.5	0.5
B	1.6	1.6	1.6
C	1.1	1.1	1.1
Q312			
E	0.9	0.9	0.9
B	4.3	4.3	4.3
C	1.7	1.7	1.7
Q314			
E	0	0	0
B	0	4.6	0
C	3.2	0	0

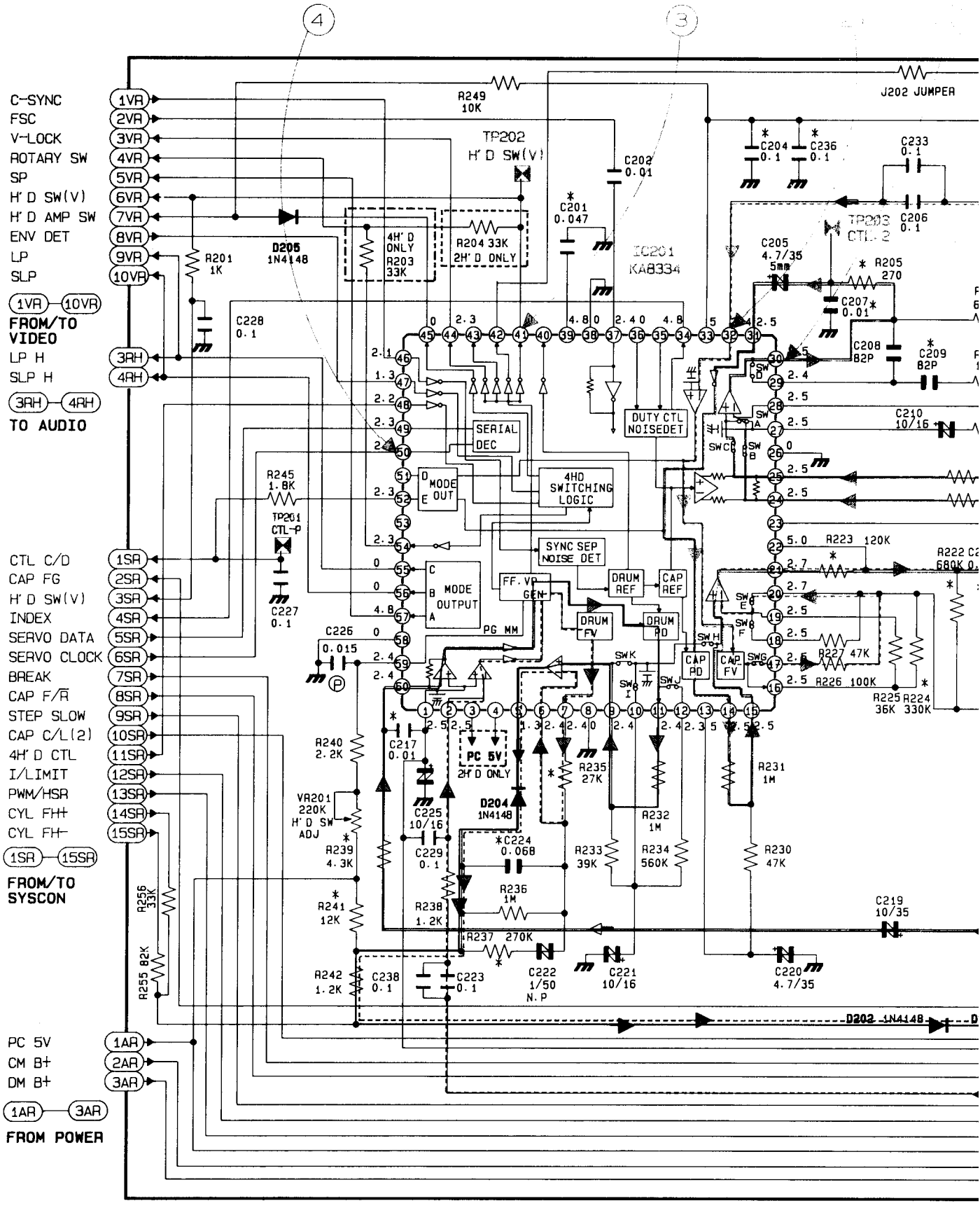
IC301 LA7425



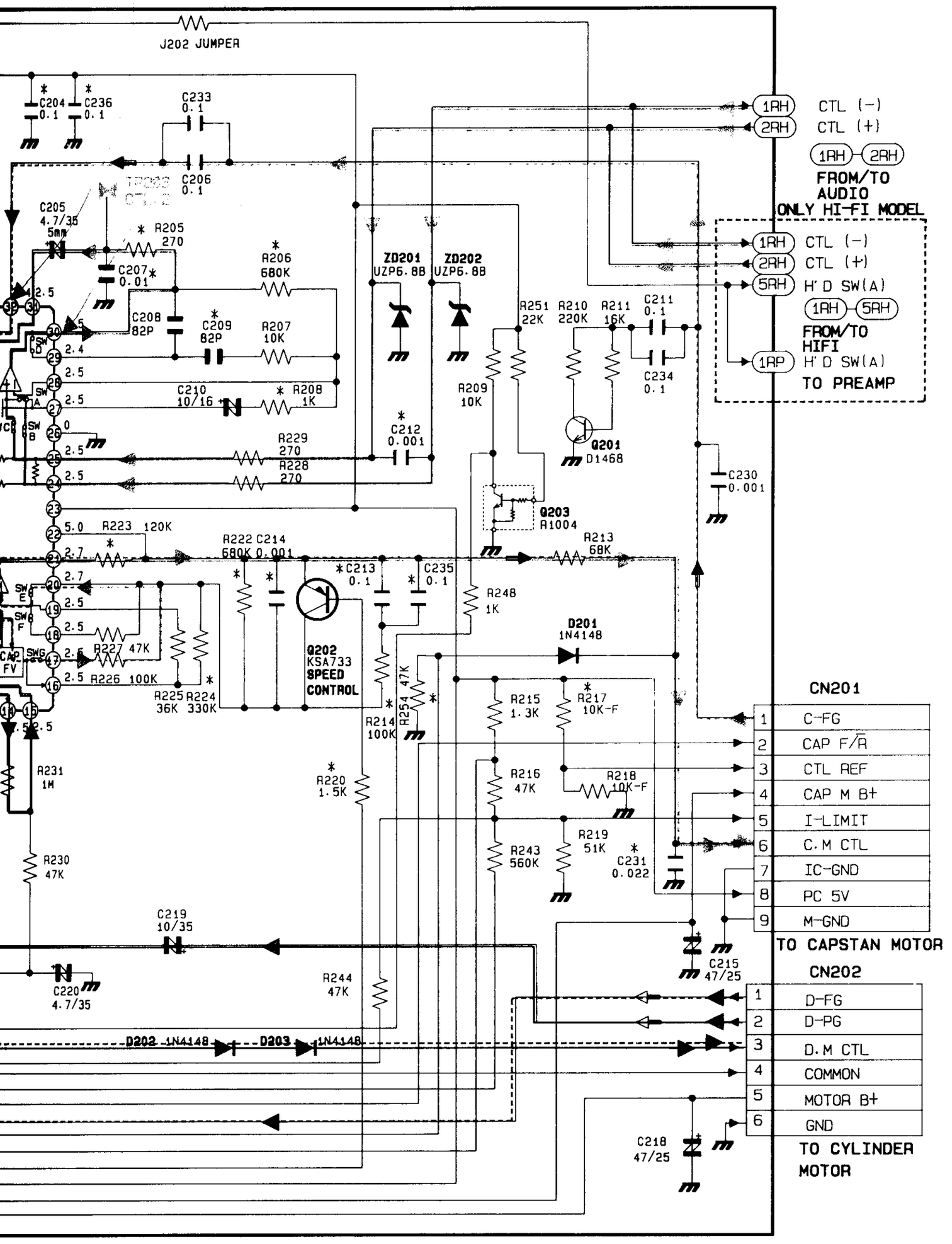
IC302 LA7416



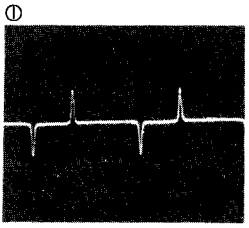
10-13. SERVO


RED
CYLINDER SPEED CONTROL
CYLINDER PHASE CONTROL
BLUE
C-SYNC
FSC
V-LOCK
ROTARY SW
SP
H' D SW(V)
H' D AMP SW
ENV DET
LP
SLP
1VR
2VR
3VR
4VR
5VR
6VR
7VR
8VR
9VR
10VR
1VR—10VR
FROM/TO VIDEO
LP H
SLP H
3RH
4RH
3RH—4RH
TO AUDIO
CTL C/D
CAP FG
H' D SW(V)
INDEX
SERVO DATA
SERVO CLOCK
BREAK
CAP F/R
STEP SLOW
CAP C/L(2)
4H' D CTL
I/LIMIT
PWM/HSR
CYL FH+
CYL FH−
1SR
2SR
3SR
4SR
5SR
6SR
7SR
8SR
9SR
10SR
11SR
12SR
13SR
14SR
15SR
1SR—15SR
FROM/TO SYSCON
PC 5V
CM B+
DM B+
1AR
2AR
3AR
1AR—3AR
FROM POWER
R249 10K
J202 JUMPER
TP202 H' D SW(V)
C202 0.01
C201 0.047
C204 0.1
C236 0.1
C233 0.1
TP203 CTL-2
C206 0.1
C205 4.7/35 5mm
R205 270
C207 0.01
C208 82P
C209 82P
C210 10/16
R201 1K
D205 1N4148
4H' D ONLY R203 33K
R204 33K 2H' D ONLY
IC201 KA8334
C228 0.1
SERIAL DEC
DUTY CTL NOISEDET
MODE OUT
4HD SWITCHING LOGIC
R245 1.8K
TP201 CTL-P
C227 0.1
SYNC SEP NOISE DET
MODE OUTPUT
FF.VP GEN
DRUM REF
CAP REF
DRUM FV
DRUM PD
CAP PD
CAP FV
PG MM
C226 0.015
R223 120K
R222 680K
R227 47K
R226 100K
R225 36K
R224 330K
C217 0.01
PC 5V 2H' D ONLY
R240 2.2K
VR201 220K H' D SW ADJ
R239 4.3K
R241 12K
R242 1.2K
C225 10/16
C229 0.1
C224 0.068
D204 1N4148
R238 1.2K
R236 1M
R237 270K
C238 0.1
C223 0.1
C222 1/50 N.P
C221 10/16
C220 4.7/35
C219 10/35
R235 27K
R232 1M
R233 39K
R234 560K
R231 1M
R230 47K
R256 33K
R255 82K
D202 1N4148

BLUE

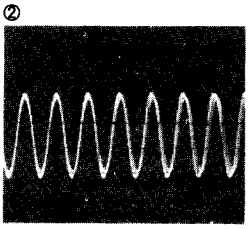

J202 JUMPER
C204 0.1
C236 0.1
C233 0.1
C206 0.1
C205 4.7/35
5mm
R205 270
C207 0.01
R206 680K
ZD201 UZP6.8B
ZD202 UZP6.8B
C208 82P
C209 82P
R207 10K
C210 10/16
R208 1K
C212 0.001
R229 270
R228 270
R251 22K
R210 220K
R211 16K
C211 0.1
C234 0.1
R209 10K
Q201 D1468
C230 0.001
Q203 A1004
R213 68K
R223 120K
R222 680K
C214 0.001
C213 0.1
C235 0.1
R248 1K
D201 1N4148
Q202 KSA733 SPEED CONTROL
R227 47K
R226 100K
R225 36K
R224 330K
R214 100K
R254 47K
R215 1.3K
R217 10K-F
R216 47K
R218 10K-F
R219 51K
R243 560K
C231 0.022
R220 1.5K
R231 1M
R230 47K
C219 10/35
C220 4.7/35
C215 47/25
R244 47K
D202 1N4148
D203 1N4148
C218 47/25
1RH CTL (-)
2RH CTL (+)
1RH-2RH
FROM/TO AUDIO
ONLY HI-FI MODEL
1RH CTL (-)
2RH CTL (+)
5RH H'D SW(A)
1RH-5RH
FROM/TO HIFI
1RP H'D SW(A)
TO PREAMP
CN201
1 C-FG
2 CAP F/R
3 CTL REF
4 CAP M B+
5 I-LIMIT
6 C.M CTL
7 IC-GND
8 PC 5V
9 M-GND
TO CAPSTAN MOTOR
CN202
1 D-FG
2 D-PG
3 D.M CTL
4 COMMON
5 MOTOR B+
6 GND
TO CYLINDER MOTOR

①

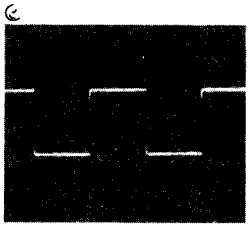


IC201-30
1.5Vp-p
PB

②

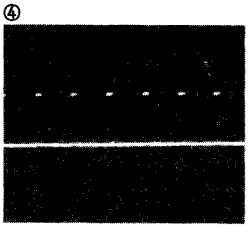


IC201-32
1.7Vp-p
PB



IC201-41
5.0Vp-p
PB/REC

④

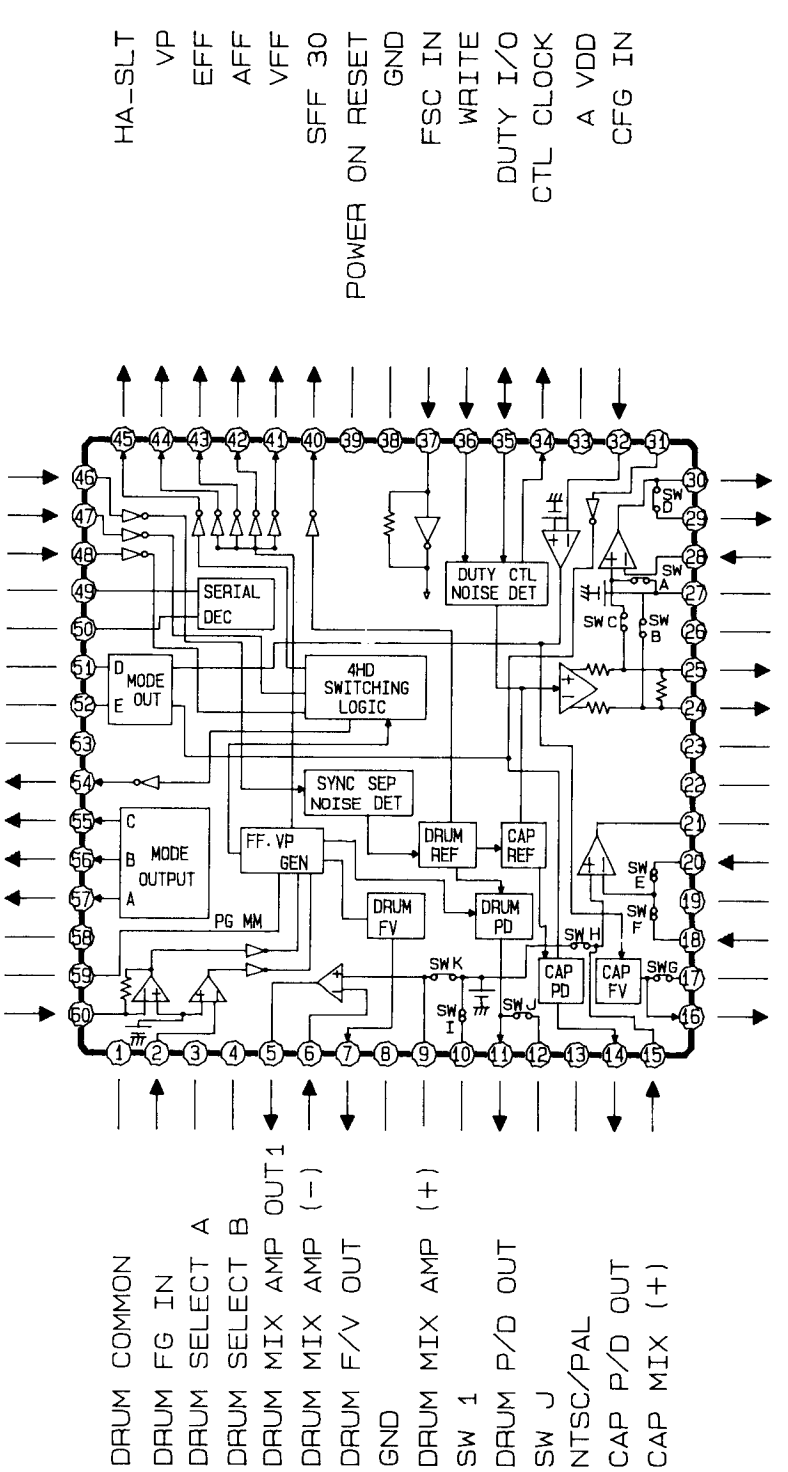


IC201-50
5.0Vp-p
PB/REC

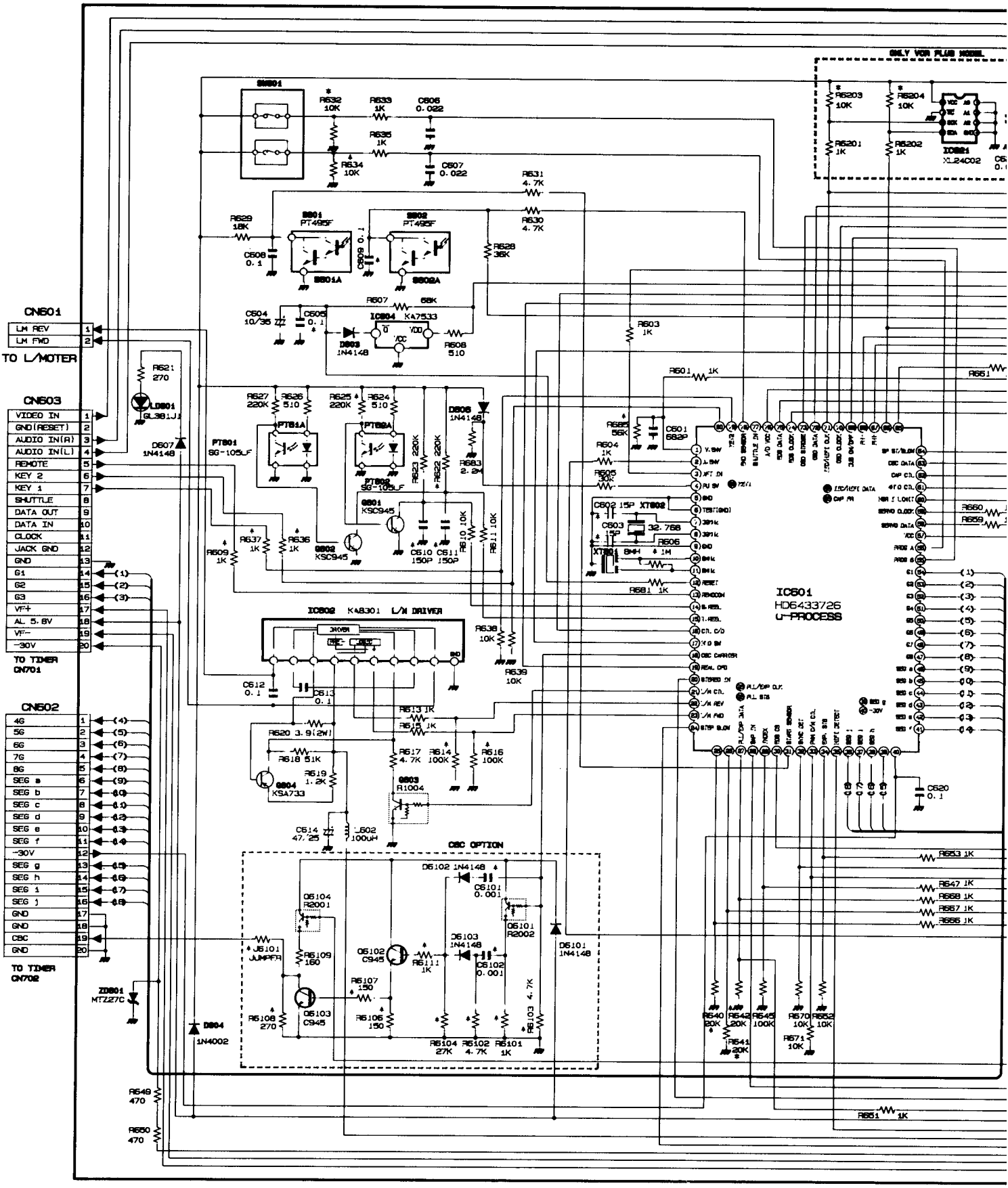
MODE / LOCA.NO	STOP	REC	PLAY
IC201			
1	2.5	2.5	2.5
2	1.9	2.5	2.5
3	0	2.5	2.5
4	0	2.5	2.5
5	0	1.7	0
6	0	2.8	2.5
7	2.5	2.5	2.3
8	0	0	0
9	2.4	2.9	2.6
10	2.5	3.3	2.5
11	5.0	2.8	4.5
12	2.3	3.4	3.0
13	2.5	2.9	2.6
14	3.3	0	1.8
15	2.6	2.6	2.6
16	0	0	3.6
17	0	0	3.6
18	0.3	0	2.6
19	0.1	2.5	2.5
20	0.1	2.5	2.5
21	0	2.6	3.1
22	0	2.7	2.7
23	5.1	5.1	5.1
24	2.5	2.0	2.5
25	2.5	2.9	2.5
26	0	0	0
27	2.5	2.5	2.5
28	2.5	2.5	2.5
29	0.7	2.1	3.8
30	2.5	2.5	2.5
31	1.1	2.3	4.4
32	-0.5	2.5	4.6
33	5.1	5.1	5.1
34	3.4	3.4	3.4
35	5.0	5.0	5.0
36	0	0	0
37	-0.3	1.9	4.5
38	0	0	0
39	-0.5	-0.5	5.2
40	2.6	2.6	2.6
41	0	2.5	2.5
42	0	0	2.5
43	0	2.5	2.5
44	0	0	0
45	0	5.1	5.1
46	0.6	0.7	1.3
47	5.2	0.3	0.7
48	0	0	0
49	0.5	0.5	0.5

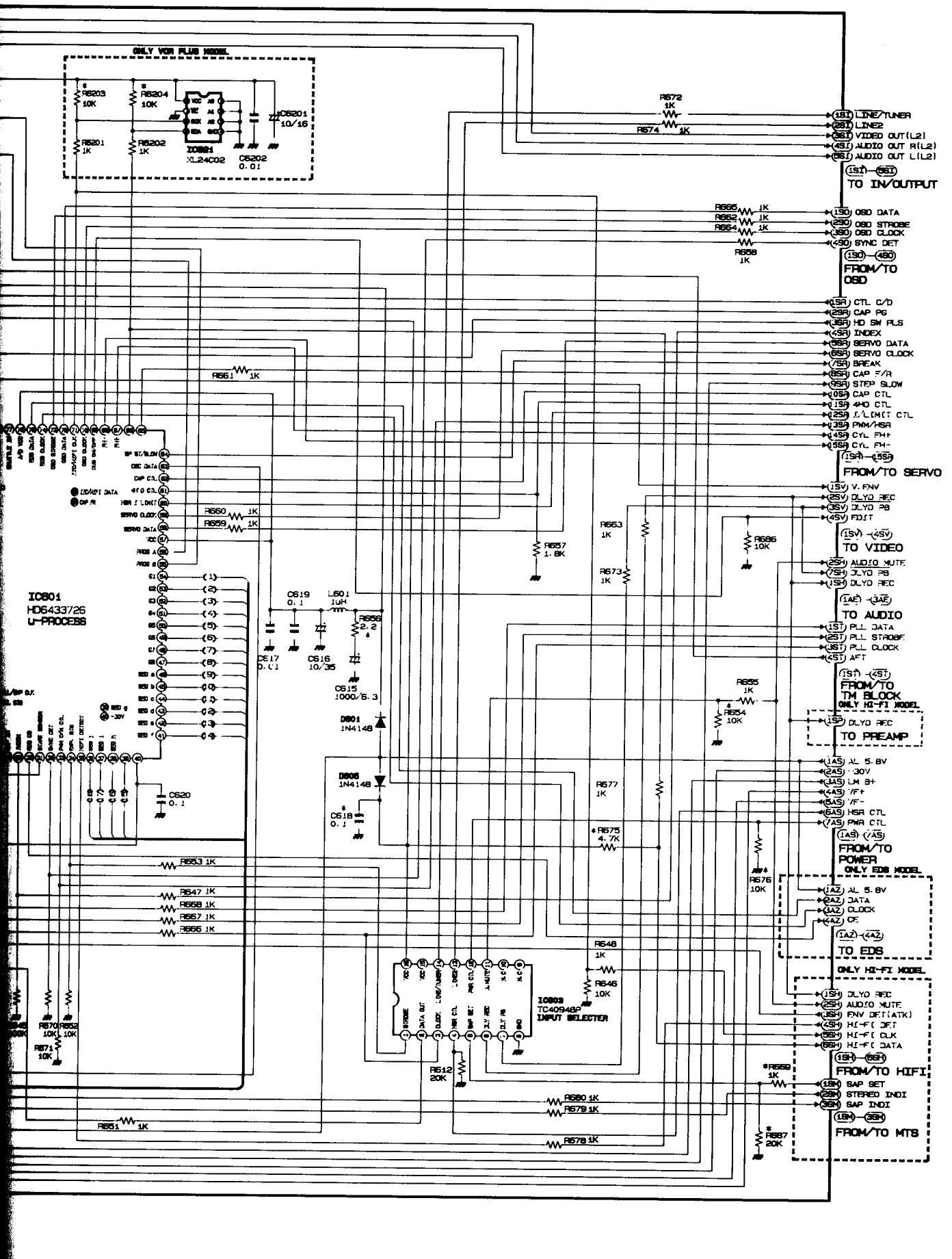
MODE / LOCA.NO	STOP	REC	PLAY
50	0.7	0.7	0.7
51	0	2.5	2.5
52	0	3.0	1.9
53	0	0	0
54	2.5	2.5	2.5
55	0	0	0
56	0	5.0	5.0
57	5.1	0	0
58	0	0	0
59	0	0	0
60	2.5	2.5	2.5
Q201			
E	0	0	0
B	0.5	0.2	0.2
C	5.0	5.0	5.0
Q202			
E	2.7	2.7	2.7
B	2.6	2.6	2.6
C	5.0	5.0	5.0
Q203			
E	0	0	0
B	1.3	2.6	2.6
C	0	2.1	2.0

IC201 KA8334



10-14. SYSTEM CONTROL



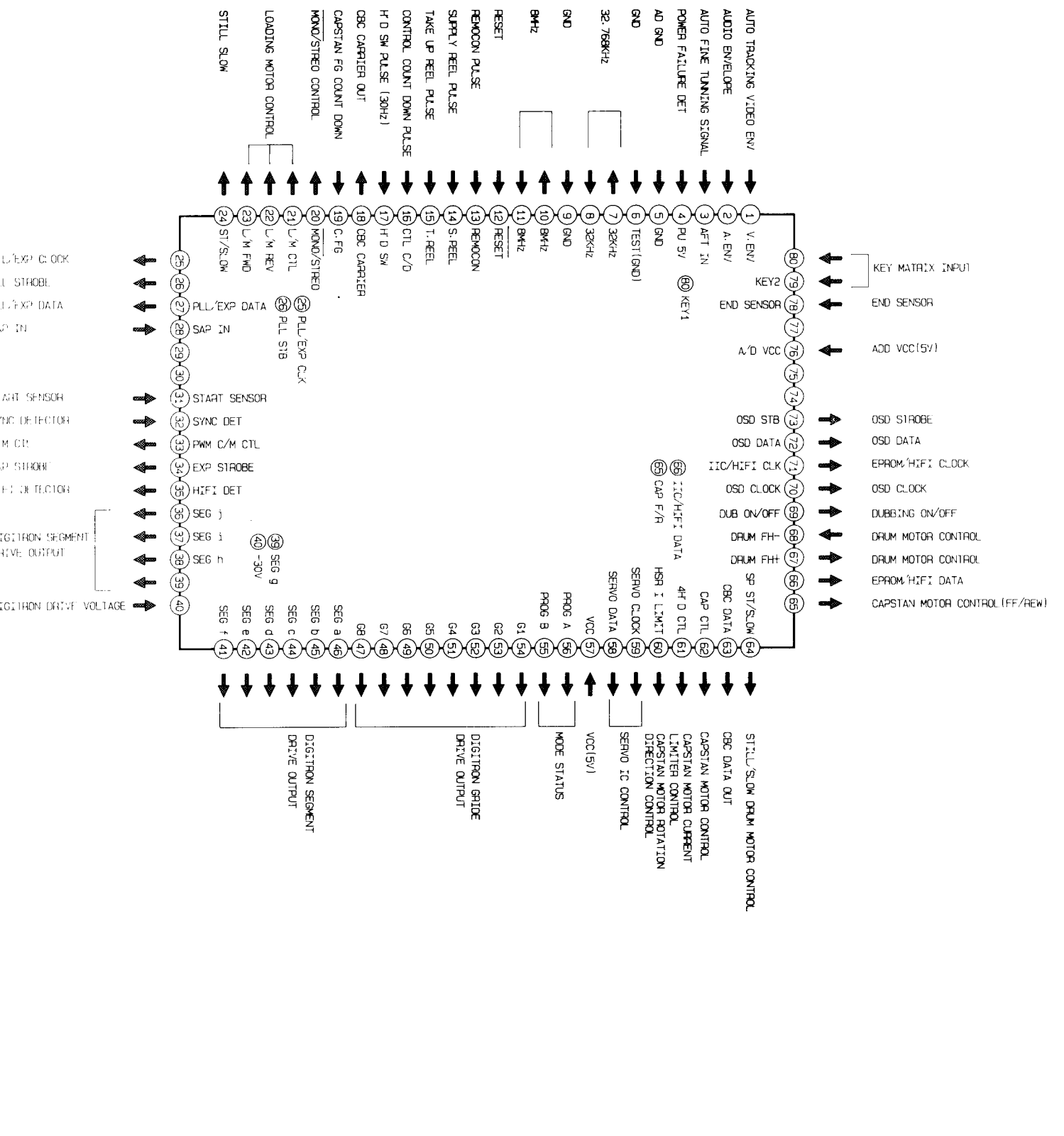

ONLY VCR PLUS MODEL
R6203 10K
R6204 10K
R6201 1K
R6202 1K
IC6201 XL24C02
C6202 0.01
C6201 10/16
R672 1K
R674 1K
1SI LINE/TUNER
2SI LINE2
3SI VIDEO OUT(L2)
4SI AUDIO OUT R(L2)
5SI AUDIO OUT L(L2)
1SI-6SI
TO IN/OUTPUT
R665 1K
R662 1K
R664 1K
R658 1K
1SO OSD DATA
2SO OSD STROBE
3SO OSD CLOCK
4SO SYNC DET
1SO-4SO
FROM/TO OSD
1SA CTL C/D
2SA CAP PG
3SA HD SW PLS
4SA INDEX
5SA SERVO DATA
6SA SERVO CLOCK
7SA BREAK
8SA CAP F/R
9SA STEP SLOW
10SA CAP CTL
11SA 4HD CTL
12SA L/LIMIT CTL
13SA PWM/HSR
14SA CYL FH+
15SA CYL FH-
1SA-15SA
FROM/TO SERVO
R661 1K
R660 1K
R659 1K
R657 1.8K
R663 1K
R673 1K
R686 10K
1SV V.ENV
2SV DLYD REC
3SV DLYD PB
4SV FDIT
1SV-4SV
TO VIDEO
2SH AUDIO MUTE
7SH DLYD PB
1SH DLYD REC
1AE-3AE
TO AUDIO
1ST PLL DATA
2ST PLL STROBE
3ST PLL CLOCK
4ST AFT
1ST-4ST
FROM/TO TM BLOCK
ONLY HI-FI MODEL
R655 1K
R654 10K
1SP DLYD REC
TO PREAMP
IC801
HD6433726
u-PROCESS
C619 0.1
L601 1uH
R656 2.2
C617 0.01
C616 10/35
C615 1000/6.3
D801 1N4148
D806 1N4148
C618 0.1
C620 0.1
1AS AL 5.8V
2AS -30V
3AS LM B+
4AS VF+
5AS VF-
6AS HSR CTL
7AS PWR CTL
1AS-7AS
FROM/TO POWER
ONLY EDS MODEL
R677 1K
R675 4.7K
R676 10K
1AZ AL 5.8V
2AZ DATA
3AZ CLOCK
4AZ CE
1AZ-4AZ
TO EDS
ONLY HI-FI MODEL
R653 1K
R647 1K
R668 1K
R667 1K
R666 1K
R648 1K
R646 10K
IC803
TC40948P
INPUT SELECTER
1SH DLYD REC
2SH AUDIO MUTE
3SH ENV DET(ATK)
4SH HI-FI DET
5SH HI-FI CLK
6SH HI-FI DATA
1SH-6SH
FROM/TO HIFI
R670 10K
R652 10K
R671 10K
R612 20K
R680 1K
R679 1K
R678 1K
R651 1K
*R669 1K
1SM SAP SET
2SM STEREO INDI
3SM SAP INDI
1SM-3SM
FROM/TO MTS
*R687 20K

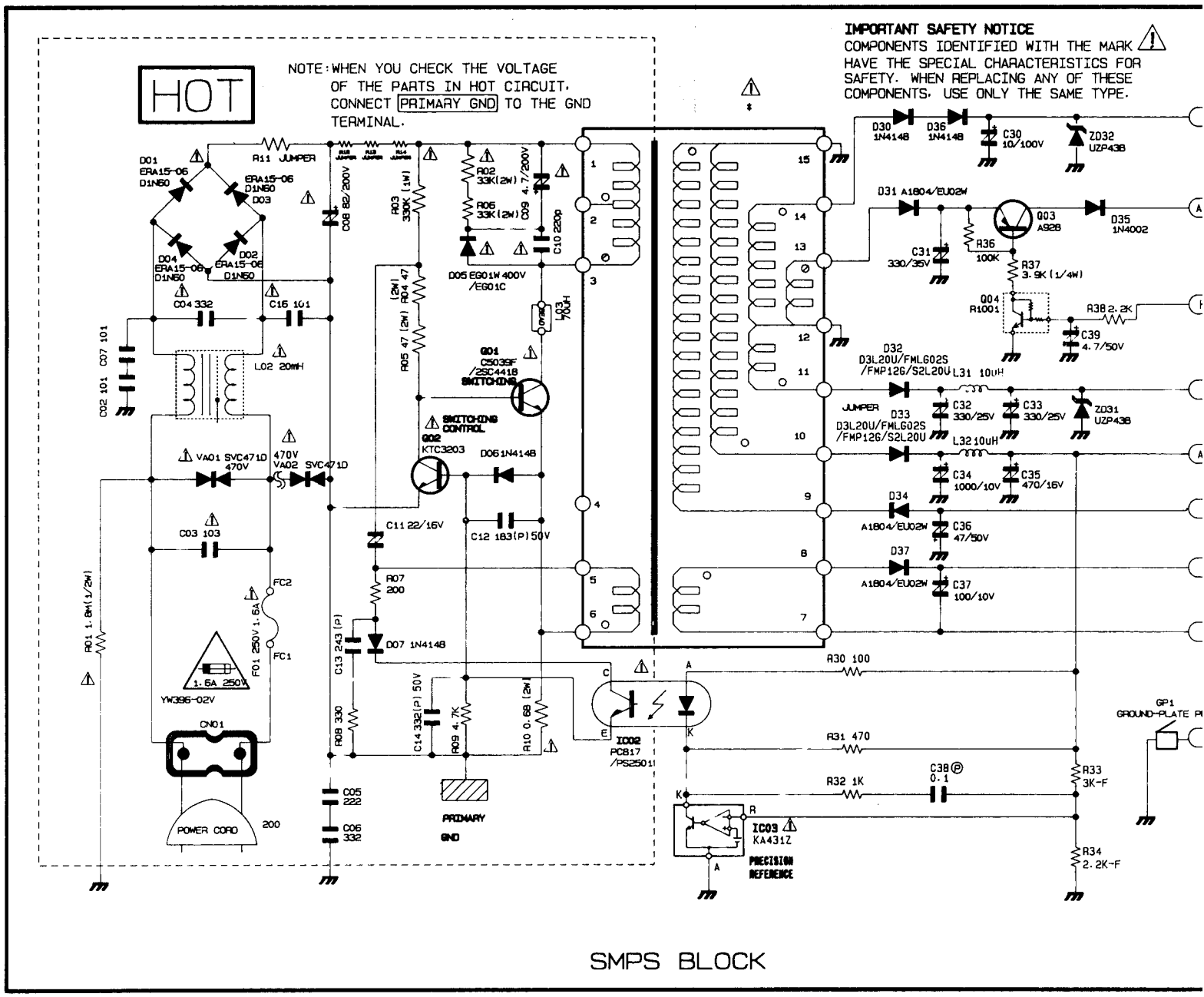
MODE / LOCA.NO	STOP	REC	PLAY
IC601			
1	0.2	0	1.6
2	2.1	2.6	2.0
3	3.6	4.7	5.5
4	5.1	5.1	5.1
5	0	0	0
6	0	0	0
7	1.6	2.6	1.4
8	2.1	3.9	2.1
9	0	0	0
10	-	-	-
11	-	-	-
12	5.0	2.5	-0.4
13	5.7	5.4	4.8
14	4.0	4.8	-0.4
15	2.5	4.8	-0.4
16	0.4	3.0	1.6
17	0.5	2.5	2.5
18	0.5	5.0	5.0
19	0.5	2.1	1.3
20	0.4	0	-0.7
21	-4.6	5.0	5.0
22	-0.5	5.0	5.0
23	-0.5	5.0	5.0
24	-10.6	-3.4	-18.4
25	0	0.4	0.4
26	0	0	0
27	0	0	0
28	0.9	5.0	5.0
29	0	3.0	3.0
30	4.7	4.5	0
31	4.7	4.8	4.7
32	0	0	4.4
33	0	4.9	4.9
34	0	4.5	4.5
35	1.0	4.9	4.9
36	-22.5	-16.4	-18.7
37	-22.5	-26.1	-23
38	-22.5	-22	-22.6
39	-22.5	-26.1	-22.6
40	-27.5	-26	-26
41	-22.8	-26	-22.5
42	-22.3	-15	-5.7
43	-22.2	-3.3	0.8
44	-22.1	-3.1	-2.7
45	-21.8	-7.1	-5.2
46	-21.9	-15.5	-5.6
47	-21.5	-10	-1.5
48	-21.9	-8.0	-9.7
49	-25.9	-19.6	-19.2

MODE / LOCA.NO	STOP	REC	PLAY
50	-25.1	-18.6	-18.2
51	-24.7	-17.9	-17.9
52	-24.4	-17.9	-18.1
53	-23.6	-16.9	-17.3
54	-23.0	-16.5	-17.3
55	0	4.9	5.0
56	0	0	0
57	6.5	5.0	5.0
58	0	0	0
59	0	0.3	0.3
60	0	1.8	0.2
61	0	0	0
62	0	5.0	5.0
63	0	5.0	5.0
64	0.6	1.5	-0.3
65	0.2	4.6	4.6
66	4.5	0	0
67	-0.5	0	0
68	-5.0	4.9	0
69	-0.5	5.0	0
70	0	4.9	4.9
71	4.0	0	0
72	0	0	0
73	-0.5	0	0
74	5.1	5.0	5.0
75	-0.5	3.5	3.5
76	5.4	5.0	5.0
77	-0.5	1.9	2.2
78	2.4	4.9	5.3
79	0	0	0
80	0	3.1	3.1
IC602			
1	0	0	0
2	0.5	0.5	0.5
3	0.9	0.9	0.9
4	1.0	1.0	1.0
5	3.2	3.2	3.2
6	3.2	3.2	3.2
7	12.8	12.8	12.8
8	12.8	12.8	12.8
9	0.9	0.9	0.9
10	0.5	0.5	0.5
IC603			
1	0.3	0.5	0.5
2	5.2	5.2	5.2
3	5.1	5.1	5.1
4	0.6	0.6	1.5
5	0.5	0.5	1.9
6	0.5	0.5	4.0
7	0.2	0.5	4.0

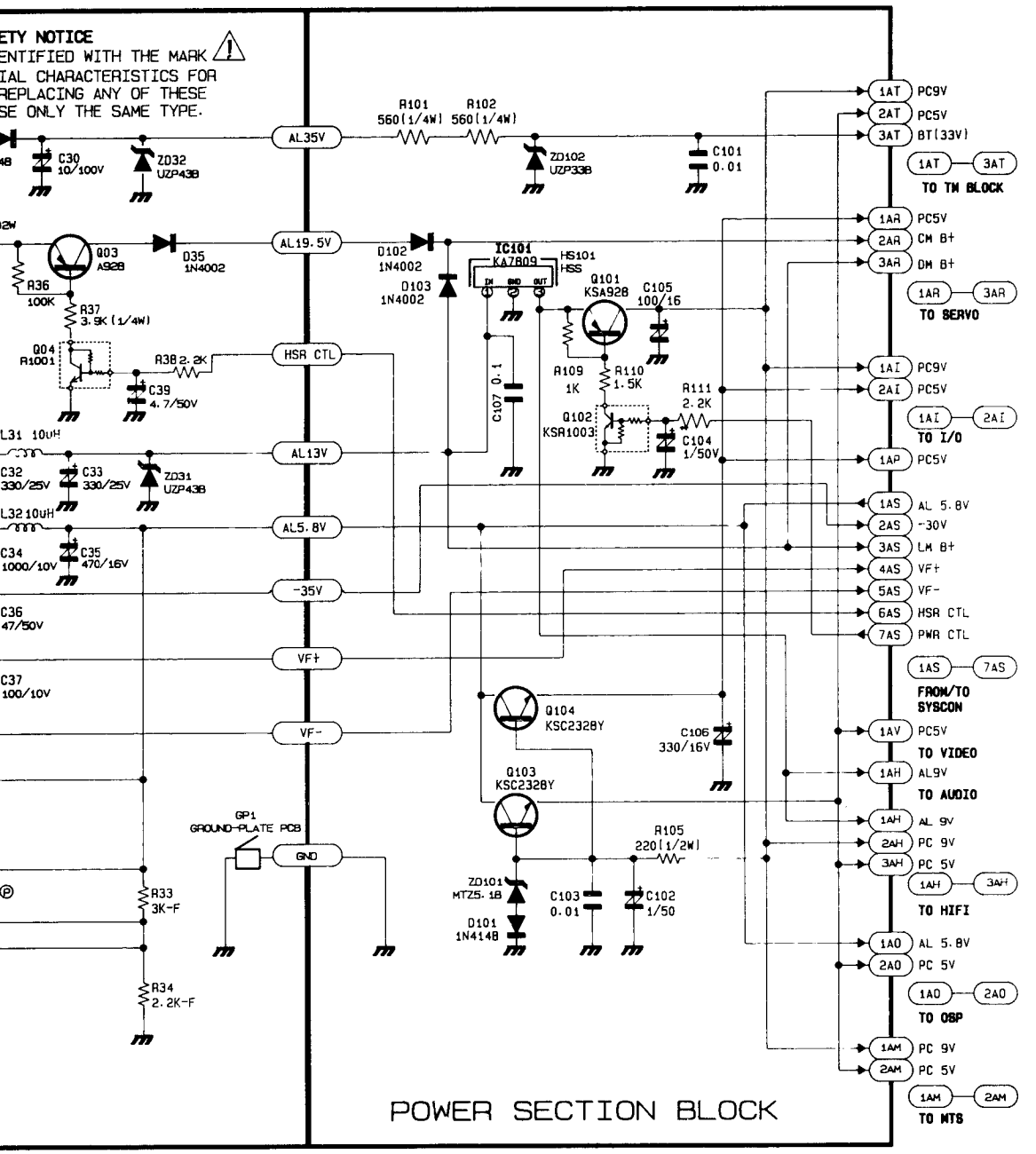
MODE / LOCA.NO	STOP	REC	PLAY
8	0	0	0
9	0	0	0
10	0	0	0
11	3.5	1.3	2.3
12	5.2	0	5.2
13	2.6	0.9	3.0
14	2.7	1.2	2.0
15	2.7	0.9	0.4
16	5.2	5.4	5.4
IC604			
1	5.0	5.0	5.0
2	0	0	0
3	4.8	4.8	5.8
Q601			
E	0	0	0
B	0	0	0
C	0.5	0.3	0
Q602			
E	0	0	0
B	0	1.1	0
C	0.5	0.2	0
Q603			
E	5.0	5.0	5.0
B	0	0	0
C	0	0	0
Q604			
E	12.7	12.7	12.7
B	12.7	12.7	12.7
C	1.0	1.0	1.0

IC601 HD6433726

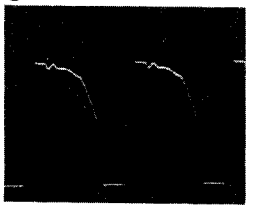



HOT
NOTE: WHEN YOU CHECK THE VOLTAGE OF THE PARTS IN HOT CIRCUIT, CONNECT PRIMARY GND TO THE GND TERMINAL.
IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.
D01 ERA15-06 D1N60
D02 ERA15-06 D1N60
D03 ERA15-06 D1N60
D04 ERA15-06 D1N60
R11 JUMPER
R02 33K(2W)
R06 33K(2W)
R03 330K (1W)
R04 47 (2W)
R05 47 (2W)
C08 82/200V
C09 4.7/200V
C10 220p
D05 EG01W 400V /EG01C
C04 332
C16 101
C02 101
C07 101
L02 20mH
Q01 C5039F /2SC4418 SWITCHING
Q02 KTC3203 SWITCHING CONTROL
D06 1N4148
VA01 SVC471D 470V
VA02 SVC471D 470V
C03 103
C11 22/16V
C12 183(P) 50V
R07 200
D07 1N4148
C13 243 (P)
R08 330
C14 332(P) 50V
R09 4.7K
R10 0.68 (2W)
R01 1.8M(1/2W)
FC2
FC1
F01 250V 1.6A
1.6A 250V
YW396-02V
CN01
POWER CORD
200
C05 222
C06 332
PRIMARY GND
IC02 PC817 /PS2501
D30 1N4148
D36 1N4148
C30 10/100V
ZD32 UZP43B
D31 A1804/EU02W
Q03 A928
D35 1N4002
C31 330/35V
R36 100K
R37 3.9K (1/4W)
Q04 R1001
R38 2.2K
C39 4.7/50V
D32 D3L20U/FMLG02S /FMP12G/S2L20U
L31 10uH
JUMPER
D33 D3L20U/FMLG02S /FMP12G/S2L20U
L32 10uH
C32 330/25V
C33 330/25V
ZD31 UZP43B
C34 1000/10V
C35 470/16V
D34 A1804/EU02W
C36 47/50V
D37 A1804/EU02W
C37 100/10V
R30 100
R31 470
R32 1K
C38 0.1
R33 3K-F
R34 2.2K-F
IC03 KA431Z PRECISION REFERENCE
GP1 GROUND-PLATE

SMPS BLOCK

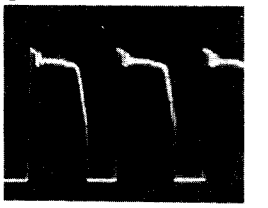


①



Q01-C
240Vp-p
POWER OFF

②



Q01-C
270Vp-p
POWER ON

MODE / LOCA.NO	STOP	REC	PLAY
IC02			
A	5.7	5.7	5.7
C	-48	-48	-49.5
E	-48	-47.8	-50
K	4.6	4.6	4.6
Q01			
E	-52	-52	-52
B	-52	-52	-52
C	56	56	56
Q02			
E	-51	-51	-51
B	-51	-51	-51
C	-51	-51	-51
Q03			
E	20	20	20
B	20	20	20
C	-0.5	-0.5	-0.5
Q04			
E	0	0	0
B	0	0	0
C	20	20	20
Q101			
E	8.9	8.9	8.9
B	8.9	8.9	8.9
C	8.2	8.2	8.2
Q102			
E	0	0	0
B	0	0	0
C	4.5	4.5	4.5
Q103			
E	5.1	5.1	5.1
B	5.8	5.8	5.8
C	5.7	5.7	5.7
Q104			
E	5.1	5.1	5.1
B	5.7	5.7	5.7
C	5.8	5.8	5.8

6. REPLACEMENT PARTS LIST

6-1. REPLACEMENT PARTS LIST FOR M-472,M-462,M-45

NOTE :

- The PC board assembly with * mark is no longer available after the **end of the production.**
- **This parts listed on the base model M-472.** For M-462,M-45 different parts only are listed on the difference list.

L/C NO.	PARTS NO.	REPLACEMENT NO.	DESCRIPTION;SPECIFICATION
		- MECHANICAL PARTS -	
922	70790704	67008-130-I 71	SCREW PH; +M3X3 FE FZY
951	70790086	67334-600-310	WASHER SLIT;PI2.5XPI5XT0.5
952	70790085	67304-I 03-410	WASHER-PLAIN;3.2X6X0.5 POLYSLIDER
956	70790154	67334-601-830	SLIT WASHER;2.5X9X0.5(RED)
958	70790154	67334-601-830	SLIT WASHER;2.5X9X0.5(RED)
A101	70790852	69000-501-317	ASSY PANEL FRONT;M-472
A101C	70790601	62724-0090-00	MASK SPRING;SUS 304(GE/RCA)
AI 02A	70790848	64042-0222-05	DOOR-CASSETTE;ABS94HB BLK M472
AI 04A	70790795	62002-0037-01	CABINET-TOP;TEXTURE TO.625 M-462
AI 04C	70790082	67158-240-I 63	SCREW-TAP BH;2-4X16 FE FZB
AI20	70790635	63312-0163-00	COVER-BOTTOM;SECC TO.5 WHT SV-50
A120A	70790081	67158-230-120	SCREW-TAP TITE BH;3X10 FE FZY
A701	70790851	65003-0044-42	PACKING CASE;M-472 SW3 A YEL
A702	70790682	65231-0133-00	CUSHION-F/B;EPS#58 M-461 T15 W442 L390
A704	70790169	68654-604-720	NITRON BAG-SET;570X550X0.5T PAL
B210	70790218	67158-240-121	SCREW-TAP TITE;BH +TB 3 L12 SWRCH18A ZPC3
B251	70790560	61641-0023-00	SLIDER-MAIN;POM T12.4 NAT
B252	70790517	61473-0107-00	GEAR-LOADING L ASSY;X-5
B253	70790515	61473-0105-00	GEAR-LOADING R ASSY;X-5
8254	70790609	62724-021 1-00	SPRING-BRAKE CAPSTAN;ES SUS304WPB P10.4
8255	70790735	61472-0104-01	GEAR-MASTER;POM(M90-44) Z60 SP NAT
B256	70790691	66823-0059-00	MOTOR-D.D CAPSTAN;F2QTB04
8257	70790524	61494-0009-00	BELT-CAPSTAN;CY-65 FR W2 T2 L88.6
8258	70790510	61453-0003-00	CLUTCH-ASSY;
8259	70790534	61533-0095-00	LEVER-SLIDER PINCH;PBT T4 NAT
B260	70790514	61473-0102-00	GEAR-WORMWHEEL;POM MO.55 Z57 SP NAT
B261	70790531	61533-0090-00	LEVER-SH IFT;PBT T2.5
8262	70790532	61533-0091-00	LEVER-IDLER CHANGE;PBT T3.3
8263	70790607	62724-0207-00	SPRING-LEVER SHIFT;TS SUS304WPB P10.7 ID
8264	70790713	67172-0173-00	UNIT-LOADING(ASSY);X-5
8265	70790692	66823-0060-00	MOTOR-LOADING ASSY;POM+RF370C X-5
8266	70790523	61474-0103-00	GEAR-WORM LOADING;PBT MO.55 WO NAT
8267	70790649	63324-0299-00	HOLDER-SHAFT;POM NAT
8268	70790597	62614-0014-00	BRAKE-CAPSTAN ASSY;POM X-5
CB81A	70790078	67098-I 30-065	SCREW TAP TITE BH;3X10 FE FZB
DT01A	70790755	63323-0427-00	HOLDER-TIMER;ABS 94HB BLK M-456
H500	70790797	62052-0014-01	HOUSING-ASSY;X5FL2630B(TSB)

NOTE :

- The PC board assembly with * mark is no longer available after the end of the production.
- This parts listed on the base model M-472. For M-462,M-45 different parts only are listed on the difference list.

L/C NO.	PARTS NO.	REPLACEMENT NO.	DESCRIPTION;SPECIFICATION
H510	70790581	62202-0103-00	CHASSIS-UPPER;SECC T1.0 NAT X-5
H520	70790645	63322-0317-00	HOLDER-CASSETTE(ASSY);SECC X5FL0810A X-5
H521	70790641	63321-0314-00	HOLDER-CASSETTE;SECC NAT 1/8H HRB 50
H522	70790540	61533-0102-00	LEVER-LOCK(R);SECC T1.2
H523	70790542	61533-0104-00	LEVER-LCCK(L);SECC T1.2
H524	70790618	62724-0220-00	SPRING-LEVER LOCK;ES SUS304WPB P10.2 ID2
H525	70790618	62724-0220-00	SPRING-LEVER LOCK;ES SUS304WPB P10.2 ID2
H526	70790541	61533-0103-00	LEVER-KEY CASSETTE;POM(LUCEL N109-LD) NA
H531	70790579	62201-0102-00	CHASSIS-SIDE ""L"";ABS(HF-380) T10 BLK X-5
H532	70790530	61532-0101-00	LEVER-LIGHT SHUTTER;POM(LUCEL N109-LD) B
H533	70790617	62724-0219-00	SPRING-LIGHT SHUTTER;ES SUS304WPB P10.2
H535	70790539	61533-0100-00	LEVER-DOOR;POM(LUCEL N109P-LD) BLK T5
H540	70790583	62203-0104-00	CHASSIS-SIDE ""R""(ASSY);ABS X5FL0505A X-5
H541	70790578	62201-0101-00	CHASSIS-SIDE ""R"";ABS(HF-380) T10 BLK X-5
H542	70790565	61642-0032-00	SLIDER-DAMPER;POM(LUCEL N109-LD) T4 BLK
H543	70790616	62724-0218-00	SPRING-SLIDE DAMPER;ES SUS304WPB P10.4 I
H544	70790538	61533-0099-00	LEVER-LID OPENER;POM(LUCEL N109-LD) NAT
H545	70790620	62724-0222-00	SPRING-LID OPENER;TS SWPB P10.55 108.9 0
H550	70790504	61403-0073-00	SHAFT-ARM(ASSY);SUM24L X5FL0405A X-5
HSS	70790179	67158-230-081	SCREW-TAP BH;2-3X8 FE FZY
JK01A	70790420	63014-0153-00	BRACKET-JACK;SPTE T0.5
LD61A	70790648	63323-0313-00	HOLDER-LED;POM
LD71A	70790786	63324-0411-00	HOLDER-C.B.C;ABS94HB BLK M-461
PT61A	70790647	63323-0312-00	HOLDER-PHOTO;POM
PT62A	70790647	63323-0312-00	HOLDER-PHOTO;POM
S601A	70790642	63322-0311-00	HOLDER-TR;POM
S602A	70790642	63322-0311-00	HOLDER-TR;POM
T201	70790557	61574-0023-00	REEL-DISK L ASSY;POM D30 X-5
T202	70790556	61574-0021-00	REEL-DISK R ASSY;POM D X-5
T203	70790592	62613-0013-00	BRAKE-SUB L;PBT X-5
T204	70790596	62614-0011-00	BRAKE-SUB R ASSY;PBT LUPOX EG 5000H X-5
T207	70790595	62614-0009-00	BRAKE-MAIN L ASSY;PBT X-5
T208	70790594	62614-0007-00	BRAKE-MAIN R ASSY;PBT X-5
T209	70790608	62724-0208-00	SPRING-BRAKE MAIN;ES SUS304WPB PT0.35 ID
T210	70790522	61474-0099-00	GEAR-RELAY S ASSY;PEBAX MO.5 M48 SP
T211	70790520	61474-0095-00	GEAR-RELAY(T);PEBAX#6333 MO.5 Z41 SP X-5
T212	70790549	61543-0071-00	ARM-TENSION FULL ASSY;X-5
T216	70790613	62724-0215-00	SPRING-TENSION;ES SUS304WPB P10.35 ID2.1
T217	70790537	61533-0098-00	LEVER-REC S/W;PBT
T218	70790615	62724-0217-00	SPRING-REC S/W;ES SUS304 P10.23 03.5 L14
T219	70790686	66603-0005-00	MAGNET-F/E HEAD;X-5
T220	70790567	61643-0027-00	SLIDER-G/R ASSY(S);X-5
T221	70790569	61643-0029-00	SLIDER-G/R ASSY(T);X-5

NOTE :

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L/C NO.	PARTS NO.	REPLACEMENT NO.	DESCRIPTION;SPECIFICATION
T223	70790561	61642-0022-00	SLIDER-RACK HOUSING;POM T10.5 BLK
T224	70790687	66603-0006-00	MAGNET-ACE HEAD ALL(ASSY);X-5
T225	70790562	61642-0024-00	SLIDER-PINCH;POM T2 NAT
T226	70790535	61533-0096-00	LEVER-REVIEW;ZYTEL T3.8 BLK
T227	70790551	61544-0073-00	ARM-REVIEW ASSY;PPS X-5
T228	70790533	61533-0094-00	LEVER-PINCH CAM;PC T5 X-5
T229	70790529	61532-0093-00	LEVER-PINCH COMP;PBT T13.3 X-5
T230	70790610	62724-0212-00	SPRING-PINCH(COMP);TS SWPB P11.0 ID6 0D8
T231	70796161	62713-0054-00	PRISM-LED;PMMA D5 IF-850
T232	70790566	61643-0025-00	SLIDER-PUSH;LUPOX 2150 T2 NTR
T233	70790614	62724-0216-00	SPRING-SLIDE PUSH;ES SUS304WPB P10.55 D3
T234	70790714	67172-0174-00	UNIT-PINCH ROLLER(ASSY);X-5
T236	70790559	61603-0006-00	IDLER-ASSY;POM X-5
T237	70790805	63383-0031-00	STOPPER-TAPE;POM T2 NAT X-5 DECK
T238	70790623	62724-0239-00	SPRING-ARM PINCH;CS SUS304 WPB P10.4 ID7
T300	70790746	69020-124-067	CYLINDER ASSY;CX5-D4N/TSB
T301	70790776	69000-400-204	CYLINDER SUB ASSY;CX5-D4N/TSB
T303	70790708	67084-0076-00	HEAD-BRUSH(ASSY);SECC20/20+CARBON
TM401	70790715	67179-0194-00	UNIT-TM BLOCK;TMVH2-A05A V1 NTSC
U602A	70790081	67158-230-120	SCREW-TAP TITE BH;3X10 FE FZY
Y104	70796352	AC68-10707A	INSTRUCTION;OWNER'S MANUAL M-472 ENG/SPA
		- ELECTRICAL PARTS -	
* U621	70796404	69657-301-277	ASSY MAIN;M-472
		- INTEGRATED CIRCUITS -	
IC02	70796240	B4161-0027	PHOTO-COUPLER;PC817FN ST
IC03	70795271	A4008-0757	IC;S431C/LM431C SIP TAPG
IC101	70796016	A4008-0112	IC-REGULATION;KIA 7809P
IC201	70796383	A4008-1247	IC;KA8334B QFP 60PIN TRAY
IC301	70796236	B4012-0456	IC-LINEAR;LA7425 DIP BULK VIDEO-PROCESS
IC302	70796235	B4012-0452	IC-LINEAR;LA7416 DIP BULK
IC303	70796234	B4012-0299	IC-LINEAR;LC7975J DIP CCD
IC501	70796299	B4012-0273	IC-LINEAR;LA7286 DIP
IC601	70796388	AC09-10450D	IC-MCU;HD6433726SC65F M-672
IC602	70795131	62119-401-300	IC;KA8301(N.M)
IC603	70796390	B4008-0264	IC-LOGIC;HEF4094BP/TC4094BP DIP
IC604	70795269	A4008-0754	IC;KA7533
IC621	70796298	84012-0110	IC-LINEAR;XL24C02 DIP
IC801	70795803	62119-401-310	IC;KA8403
IC802	70795803	62119-401-310	IC;KA8403
IC901	70796384	A4012-0653	IC-LINEAR;KS5514B-13 DIP BULK CMOS 24P
		- TRANSISTORS -	

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L/C NO.	PARTS NO.	REPLACEMENT NO.	DESCRIPTION;SPECIFICATION
Q01	70795647	A4056-0027	TR-SWITCHING;KSC5039F 40W 10MHZ SI/NPN
Q02	70795142	62139-301-311	TRANSISTOR;KTC 3203Y-AT(TAPG)
Q03	70795143	62147-401-835	TRANSISTOR;KSA 928A-Y TAPG
Q04	70795137	62137-701-010	TRANSISTOR;KSR 1001 TAPG
Q101	70795143	62147-401-835	TRANSISTOR;KSA 928A-Y TAPG
0102	70795817	62137-701-012	TRANSISTOR;KSR 1003 TAPG
0103	70795135	62137-302-441	TRANSISTOR;KSC 2328-Y TAPG
0104	70795135	62137-302-441	TRANSISTOR;KSC 2328-Y TAPG
0201	70795496	A4050-0001	TRANSISTOR;2SD 1468SQ
Q202	70795134	62137-103-380	TRANSISTOR;KSA 733-Y TAPG
0203	70795138	62137-701-013	TRANSISTOR;KSR 1004 TAPG
0307	70795138	62137-701-013	TRANSISTOR;KSR 1004 TAPG
Q309	70795134	62137-103-380	TRANSISTOR;KSA 733-Y TAPG
Q310	70795136	62137-302-740	TRANSISTOR;KSC 945-Y TAPG
0311	70795136	62137-302-740	TRANSISTOR;KSC 945-Y TAPG
0312	70795136	62137-302-740	TRANSISTOR;KSC 945-Y TAPG
Q314	70795138	62137-701-013	TRANSISTOR;KSR 1004 TAPG
0315	70796359	62137-701-023	TRANSISTOR ;KSR 2004 TAPG
Q316	70795136	62137-302-740	TRANSISTOR;KSC 945-Y TAPG
Q317	70795136	62137-302-740	TRANSISTOR;KSC 945-Y TAPG
0318	70795136	62137-302-740	TRANSISTOR;KSC 945-Y TAPG
Q501	70795141	62137-702-020	TRANSISTOR;KSC 1008-Y TAPG
Q502	70795138	62137-701-013	TRANSISTOR;KSR 1004 TAPG
Q503	70795138	62137-701-013	TRANSISTOR;KSR 1004 TAPG
Q504	70795571	62137-701-020	TRANSISTOR;KSR 2001 TAPG
0601	70795136	62137-302-740	TRANSISTOR;KSC 945-Y TAPG
0602	70795136	62137-302-740	TRANSISTOR;KSC 945-Y TAPG
Q603	70795138	62137-701-013	TRANSISTOR;KSR 1004 TAPG
0604	70795134	62137-103-380	TRANSISTOR;KSA 733-Y TAPG
06101	70795572	62137-701-021	TRANSISTOR;KSR 2002 TAPG
Q6102	70795136	62137-302-740	TRANSISTOR;KSC 945-Y TAPG
06103	70795136	62137-302-740	TRANSISTOR;KSC 945-Y TAPG
Q6104	70795571	62137-701-020	TRANSISTOR;KSR 2001 TAPG
Q801	70795134	62137-103-380	TRANSISTOR;KSA 733-Y TAPG
Q901	70795136	62137-302-740	TRANSISTOR;KSC 945-Y TAPG
		- DIODES -	
D01	70796301	B4104-0094	DIODE-RECT;ERA15-06 600V 1A T
D02	70796301	B4104-0094	DIODE-RECT;ERA15-06 600V 1A T
D03	70796301	B4104-0094	DIODE-RECT;ERA15-06 600V IA T
D04	70796301	B4104-0094	DIODE-RECT;ERA15-06 600V 1A T
D05	70795587	B4102-0006	DIODE-FR;EG01C(3.3)V 500MA(0.1)VS
D06	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D07	70795150	62169-406-482	DIODE;1N4148 SAMSUNG

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L/C NO.	PARTS NO.	REPLACEMENT NO.	DESCRIPTION;SPECIFICATION
D101	70735150	62169-406-482	DIODE;1N4148 SAMSUNG
0102	70796385	A4104-0053	DIODE-RECT;1N4002 100V 1A SI
D103	70796385	A4104-0053	DIODE-RECT;1N4002 100V 1A SI
D201	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
0202	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
0203	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D204	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
0205	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D30	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D301	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D303	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
0304	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D305	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
0307	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
0308	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D309	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D31	70795656	B4102-0047	DIODE-FR;ERA18-04 400V 0.8A 0.4US T
D311	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D32	70796300	B4102-0077	DIODE-SW;FML-G02S 200V 2.5A 40NS BULK
D33	70796300	B4102-0077	DIODE-SW;FML-G02S 200V 2.5A 40NS BULK
D34	70795656	B4102-0047	DIODE-FR;ERA18-04 400V 0.8A 0.4US T
D35	70796385	A4104-0053	DIODE-RECT;1N4002 100V 1A SI
D36	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D37	70795656	B4102-0047	DIODE-FR;ERA18-04 400V 0.8A 0.4US T
0501	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D601	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D603	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
0604	70796385	A4104-0053	DIODE-RECT;1N4002 100V 1A SI
0605	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D606	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
0607	70795150	62169-406-482	DIODE;1N4148 SWSUNG
D6101	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D6102	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D6103	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
0902	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
D903	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
0904	70795150	62169-406-482	DIODE;1N4148 SAMSUNG
LD601	70796302	B4150-0286	LED-INFRARED;GL381 J1 YEL 950NM/3.5V
ZD101	70795147	62169-403-821	DIODE-ZENER;MTZ 5.18
ZD102	70795272	A4106-0062	DIODE-ZENER;UZP33B 30/36 5MA T
ZD201	70795355	62169-423-092	DIODE-ZENER;MT 6.8B
ZD202	70795355	62169-423-092	DIODE-ZENER;MT 6.88
ZD31	70795422	A4106-0068	DIODE-ZENER;UZP-18B 17/19V 20MA T

NOTE :

- The PC board assembly with * mark is no longer available after the end of the production.
- This parts listed on the base model M-472. For M-462,M-45 different parts only are listed on the difference list.

L/C NO.	PARTS NO.	REPLACEMENT NO.	DESCRIPTION;SPECIFICATION
ZD32	70795438	A4106-0076	DIODE-ZENER;UZP-43B 40/46V 10MA T
ZD601	70796360	62169-403-838	DIODE-ZENER;MTZ27C
		- CAPACITORS -	
co2	70795404	A1100-0536	C-CERAMIC;CKS 45 B 400V 101-K SC B 2G 101-K
co3	70795239	A1100-0423	C-CERAMIC;CK45B 400V B 1032 16/SCE 2G 1032 16B
co4	70795417	A1100-0580	C-CERAMIC;CK 45 B 400V T 3300-M SCF2G332M16BS
co5	70795252	A1100-0450	C-CERAMIC;CK45B 400V 222M 12/SC E 2G 222M 12BS
CO6	70795417	A1100-0580	C-CERAMIC;CK 45 B 400V T 3300-M SCF2G332M16BS
co7	70795404	A1100-0536	C-CERAMIC;CKS 45 B 400V 101-K SC B 2G 101-K
CO8	70795578	A1104-0379	C-ELEC;CE04F 200VT 820-M STX/KME-40/105
co9	70795580	A1104-0396	C-ELEC;CE04H 200VT 4R7-M KME/STX-25/105
C10	70795088	61417-110-224	C-CERAMIC HK;CK45B TAPG 500V 220-K
C101	70796389	B1102-0277	C-FILM;CQ 922 M 50V T 103-J ECQB1H103JF3
C102	70795114	61617-408-010	C-ELEC;CEAP 50V 1M RSS(4X7)
C103	70795075	61407-117-104	C-CERAMIC.AXIAL;CAX Y TAPG 16V 0.01-N
C104	70795114	61617-408-010	C-ELEC;CEAP 50V 1M RSS(4X7)
C105	70795627	61637-504-101	C-ELEC;CEAP 16V 100M SG(6.3X11)
C106	70796149	61637-504-331	C-ELEC;CEAP 16V 330M SG(10X12.5)
C107	70796207	A1100-0961	C-CERAMIC,CHIP;CK 73 Y5V 25V 104-Z C2010
C11	70795430	61627-204-220	C-ELEC;CEAP 16V 22M NP(6X11)
C12	70796231	B1102-0279	C-FILM;CQ 922 M 50V T 183-J ECQB1H183JF3
C13	70795586	61507-121-941	C-POLYESTER;CQ921M TAPG
C14	70795759	61507-121-411	C-POLYESTER;CQ921M TAPG 100V 332-J
C16	70795404	A1100-0536	C-CERAMIC;CKS 45 B 400V 101-K SC B 2G 101-K
C201	70796288	A1100-0745	C-CERAMIC,CHIP;CK 73 Y5V 50V T 473-Z C20
C202	70795075	61407-117-104	C-CERAMIC.AXIAL;CAX Y TAPG 16V 0.01-N
C204	70795072	61407-117-101	C-CERAMIC.AXIAL;UP050F 1042
C205	70796211	A1104-0609	C-ELEC;CE 04 -40/85 35V T 4R7-M SRE 4X5
C206	70795072	61407-117-101	C-CERAMIC.AXIAL;UP050F 1042
C207	70796205	A1100-0958	C-CERAMIC,CHIP;CK OB Y5V 16V 103-Z 20X12
C208	70796209	A1100-0970	C-CERAMIC,CHIP;CK OB Y5P 50V 820-K 20X12
C209	70796209	A1100-0970	C-CERAMIC,CHIP;CK OB Y5P 50V 820-K 20X12
C210	70796381	A1104-0611	C-ELEC;CE 04 -40/85 16V T 100-M SRE
C211	70795072	61407-117-101	C-CERAMIC.AXIAL;UP050F 1042
C212	70795247	A1100-0444	C-CERAMIC.CHIP;UCN 053 Y 102M IOOOP
C213	70796207	A1100-0961	C-CERAMIC,CHIP;CK 73 Y5V 25V 104-Z C2010
C214	70795247	A1100-0444	C-CERAMIC.CHIP;UCN 053 Y 102M 1000P
C215	70795621	61617-405-470	C-ELECTROLYTIC;CE04W TAPG 25V 47M(RSS 6.3X
C217	70795075	61407-117-104	C-CERAMIC.AXIAL;CAX Y TAPG 16V 0.01-N
C218	70795621	61617-405-470	C-ELECTROLYTIC;CE04W TAPG 25V 47M(RSS 6.3X
C219	70795113	61617-406-100	C-ELEC;CEAP 35V 10M RSS(5X7)
C220	70796211	A1104-0609	C-ELEC;CE 04 -40/85 35V T 4R7-M SRE 4X5
C221	70796381	A1104-0611	C-ELEC;CE 04 -40/85 16V T 100-M SRE